RURAL ECONOMY

IN

THE BOMBAY DECCAN

BY

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WITH MAP AND FOUR CHARTS

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TO THE COMPANION

OF MY MANY WANDERINGS

IN THE DECCAN

PREFACE.

In writing this book I have endeavoured to state the principal facts bearing on the economic situation, and to draw some conclusions m them. The facts relating to the Deccan been taken from the statistical information published by the Bombay Government, or have been observed by myself during the seventeen years in which I have served in the Revenue and Agricultural Departments, during which time I have had opportunities of conversing with landowners and cultivators in every part of the Deccan. Those relating to other countries are taken from official publications, consular reports, or well-known works on Agriculture and Political Economy. I have not thought it necessary in most cases to quote my authorities, since this book does not claim to be an authoritative text-book.

About a quarter of the matter contained in this book has already appeared in the form of

articles in the "Agricultural Journal of India". The rest is now published for the firs time.

The opinions expressed are merely my ow personal opinions; and it is not to be expectec that every one will agree with them. If the statement of them creates some interest in the problems involved, and serves as a fresh starting point for further investigations by those who have better opportunities for detailed local inquiry than I possess, it will have fully answered its purpose.

I wish to express my indebtedness to M. Jouzier's excellent text-book, "Economie Rurale," to the many district officers who kindly answered questions that I asked them, to Mr. D. B. Parasnis who supplied me with some extracts from the Peshwas' records, to Mr. J. B. Sanjana who went through some old reports for me, and above all to Mr. Yeshwantrao Nilkanth Anandkar who has placed at my disposal his wide knowledge of economic conditions in the Deccan, and has spared no pains to assist me in every way.

G. KEATINGE.

POONA, *September*, 1911.

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INTRODUCTION.

In teaching agriculture at a college it is usual to begin with the sciences which underlie the subject, and by taking the student through a course of chemistry, botany, physics, etc., to furnish him with the equipment necessary to enable him to refer back the ordinary phenomena of agriculture to their fundamental causes. When the ground has been thus cleared, the real professional training begins, and the student is instructed in the technicalities which govern the raising of crops, animals and animal products; while in some matters he may be trained in the craft involved in working up the raw produce into its most marketable form, as in the case of butter-making or *gul*-making. This finishes the technical education, but does not complete the sum of knowledge that is necessary for success in farming. It is not so much that a higher degree of technical knowledge and experience is necessary, though no

doubt the intelligent farmer will continue all his life to add to his stock of technical knowledge. Nor is it intended here to refer to the necessity for personal qualities, though these, of course, are of paramount importance; since in farming, at any rate, no man's knowledge can be of more value than the man himself. There is, however, another kind of knowledge which the farmer should possess, and may to some extent acquire otherwise than by painful and expensive experience; and this is business knowledge. It is no use to breed fine animals if they are bred at a loss, or to grow crops suited to the climate if they are not also suited to the market.

The questions of cost and value must be considered before the farmer can decide where his best chances of success lie; and this will involve a careful study of all the factors of production: the external factors over which he has no control, but which he may turn to his own uses, as, for instance, a general abundance of labour or deficiency of capital; and the internal factors which he can control, such as the system of production to be adopted as best suited to his own circumstances. Now it is true that the ordinary farmer does not set

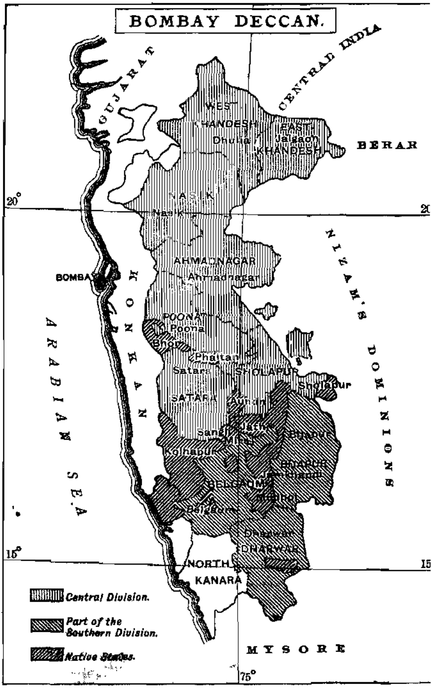
about such a systematic survey of economic conditions. He is usually content to follow the lines which the experience of centuries has indicated as suitable for the locality in which he lives: and in this he is to a great extent right. He cannot afford to ignore them; and he may do much worse than imitate the methods of successful neighbours. But before he can be content to follow another man's methods and expect similar results, he must be sure that all conditions are in his case similar to those of his model: that his land is of equal fertility, and his capital and skill sufficient for the purpose. This in itself will involve much of the consideration above indicated, and it will only take him a short way; for unless he is to be content to copy others all his life, he must take a general survey of the whole case. Now in agriculture, as in other businesses, it is not the man who is content to follow the lead of others at a safe distance who is most likely to come to the top; but the man who is quick to grasp the possibilities of the situation, and to strike out a new line: the man who can detect or anticipate a change in conditions, and lay his plans accordingly. No amount of paper study can give an aptitude for business

to a man who does not possess it; but there are *many economic conditions vitally affecting* Indian agriculture, some knowledge of which will well repay both the farmer with business aptitude and the farmer who is devoid of it. To the one it may suggest lines of new enterprise and development; to the other it may suggest the necessity for caution. And if it is important to the farmer to acquire a good knowledge of the business side of his work, *the systematic study of this subject should* certainly be an object of any institution which aims at instructing and helping him. The first step in such a study is to gather precise information about local conditions, practices and needs. After ascertaining the facts, the next thing is to collect together the experience of the best farmers. Even in a locality where most farmers are poor, it will be found that some are prosperous. The successful farmer has often a good general idea regarding the cause of his own success and his neighbour's failure; and where such information can be obtained, verified and interpreted, a basis of fact is established to which technical and economic theories may be applied, and from which a good working system may be

evolved. It is not suggested that a precise system can be laid down by which all farmers can regulate their business transactions; nor would such a thing be desirable even if it were possible; for there is no such thing as finality in these matters; and the object should be not to teach the cultivator to look for help and guidance at every turn, but to show him the way to work out his own salvation. But an agricultural survey of the nature indicated should in the course of time make it possible to formulate general principles which the intelligent farmer may apply to his own case. Such a systematic survey has yet to be made in the Bombay Presidency, and, in the meantime, in dealing with problems of rural economy in the Deccan it is necessary to be content with such general information as is available. Writers on agricultural economics in other countries commonly illustrate their arguments by giving detailed figures for some farm or estate, and inform the reader that these figures have been obtained from a careful study of the farm accounts for twenty or thirty years. In the Deccan it is impossible, or at least very difficult, to find any accounts of this nature. A general statement of the available

facts may be of some use, however, even if it does no more than indicate profitable lines for more detailed inquiry.

In this book an attempt will be made to indicate the circumstances which affect the main factors of production, viz., land, labour, and capital; to consider the question of markets and prices; and to suggest some directions in which the position of the cultivator may be improved either by his own efforts or by means of Government assistance.



BOMBAY DECCAN.
GUJARAT
CENTRAL INDIA
WEST KHANDESH
Dhulia
EAST KHANDESH
Jalgaon
BERAR
NASIK
Nasik
AHMADNAGAR
Ahmadnagar
BOMBAY
KONKAN
NIZAM'S DOMINIONS
POONA
Poona
Bhor
Phaltan
Satara
SHOLAPUR
Sholapur
SATARA
ARABIAN SEA
Sangli
Miraj
Jath
Bijapur
Kolhapur
BIJAPUR
Jamkhandi
BELGAUM
Belgaum
Dharwar
DHARWAR
NORTH KANARA
MYSORE
20°
15°
75°
Central Division.
Part of the Southern Division.
Native States.

The area marked comprises the Central Division of the Bombay Presidency, which is made up of the British Districts of East Khandesh, West Khandesh. Nasik, Ahmednagar, Poona, Sholapur and Satara.

Total area	23,800,000 acres.
Cultivated area	16,200,000 acres.

The area marked comprises part of the Southern Division of the Bombay Presidency, viz., the British Districts of Bijapur, Belgaum and Dharwar.

Total area	9,600,000 acres.
Cultivated area	7,700,000 acres.

The area marked comprises the several Native States, the territories of which are interlaced with the two tracts mentioned above.

Total area	6,100,000 acres.
Cultivated area (estimated)	4,400,000 acres.

Grand total of area	39,500,000 acres.
Grand total of cultivated area	28,300,000 acres.

The whole area mentioned may be taken as the Bombay Deccan. It is 2,500,000 acres larger than the area of England and Wales. The percentage of the total area which is cultivated in the Deccan is about the same as in England and Wales, viz., about 75 per cent. It must, however, be remembered that in England half the cultivated area consists of permanent pasture, while in the Deccan about 83 per cent of the occupied area is annually cultivated with some crop other than grass.

The whole tract is fairly homogeneous; and general statements made in the book are applicable to the whole. In the Southern part (marked), however, the soil is, generally speaking, more fertile and the rainfall better distributed than in the more northerly parts. In the Native States (marked) the Government is different from that of the rest, and statements made about Government measures do not apply to this tract.

It is to the Central Division of the Bombay Presidency (marked) that the statements made in this book primarily apply; *and in every case where detailed statistics are given they refer to this tract only, unless something to the contrary is stated.* The Central Division is three-quarters of the size of England.

PART I.

LAND.

CHAPTER I.

HISTORICAL SKETCH OF LAND TENURES AND ASSESSMENTS IN THE DECCAN.

In India the Government is so intimately connected with the land that it is necessary to give, in a book of this kind, a somewhat detailed account of the relations between the landholders and Government, and of the process by which they have been evolved.

An attempt to give a historical sketch of tenures and assessments in the Deccan is beset with many difficulties. Not only is the available documentary evidence of olden times scanty, but there is a suspicion in many cases, and a certainty in some, that it represents not the actual facts, but a theoretical system which was never introduced. Not only the principles of assessment, but even the fundamental conceptions of land tenure, altered from time to time with a change of rulers; and under the government of the Peshwas uniformity was not an object of much desire.

In early Hindu times, when land was plentiful, relatively to the population, it would appear that unclaimed land, cleared and brought under cultivation by any individual, became his private property; and that he paid for the protection which he received from the State one-sixth of the produce in ordinary times, and one-fourth in time of war. In so far as any definite connexion can be traced between the conceptions of early times and the tenures which were found to exist in the eighteenth century, the *mirasi* tenure of the Deccan was the normal outcome of this early Hindu conception, the principle of which was permanency of tenure, subject to the payment of land revenue to the State. It must not be supposed, however, that the process was one of orderly development. In the disturbed times that intervened we find very different conceptions of land tenure introduced, though how far these conceptions were acted upon is open to doubt.

The general principle of the settlement introduced by Akbar's finance minister, Raja Todarmal, appears to have been that the State owned the whole of the land, and was entitled to one-half of the gross outturn.

Malik Ambar, the founder of Aurangabad, and the Regent at the time of the last of the Nizam Shahi princes, undertook a survey of the Deccan (1600-26); and while the assessment which he aimed at was similar to that of Akbar, his ideas of land tenure were different. His object was to attach the cultivators to the soil; and with this object he made much

of the land the private property of the cultivators, attaching to the proprietary right the power of sale, and granting other lands as the joint property of the village community.

In the extremely troubled times which followed there was little opportunity for uniformity or regular development; and the next period in which any definite information may be looked for is the period of the Peshwas' government (1720-1818). Under that government there were two well-defined tenures, *Mirasi* and *Upri*.

Mirasi was the most honourable and desired tenure. A *mirasdar* held his land on permanent heritable tenure, subject to the payment of a fixed assessment, which he was liable to pay whether the land was cultivated or not. There is some doubt as to whether he had the right to transfer his land to another without the consent of the government. Captain Grant, writing from Satara in 1819, stated that government sanction was necessary if a *mirasdar* wished to alienate his land. Captain Sykes, however, writing from Poona District in 1825, declared that in former times *mirasi* land was saleable at pleasure without any sanction from government, though it had of late years ceased to have any sale value. In any case, permanency of possession was the main principle of this tenure. The land could never be seized for debt; and even if the *mirasdar* failed to pay his assessment government was not entitled to forfeit the land absolutely, though it was entitled to resort to many

devices for the recovery of its dues, including temporary sequestration of the land, or demanding the sum from the other *mirasdars* in the same village. The assessment was paid on the whole of the *mirasi* holding, but was not subject to any enhancement.

The *upri* was a tenant-at-will of the government, having no rights in the land except that of temporary cultivation, as provided for by the terms of his agreement. He took up from year to year as much land as he wanted to cultivate, and paid assessment proportionate only to the crop which he obtained. His assessment was liable to enhancement.

In 1818 it was found that round Poona and Satara by far the greater part of the cultivated land was *mirasi*, while in the more outlying parts of the Deccan the proportion of *mirasi* lands was much less. The line between *mirasi* and *upri* lands was not drawn very firmly; and in some places it was found that land which had formerly been *mirasi* had ceased to be so; while in other localities it was common to grant out waste lands for a few years under a document called a *kowl*, and at the end of that period the tenant could obtain the land on *mirasi* tenure by agreeing to pay the yearly assessment of the whole area, whether it was cultivated or not.

It has already been stated that the assessment of *mirasi* land was fixed; and it might have been thought that it would have been a simple matter, during the time of the Peshwas' government, to assess the revenue of a village for the year. As a matter of fact

the *jamabandi*, or annual assessing of revenue, was anything but a simple matter: it resolved itself into a question of bargaining between the *mamlatdar* (revenue officer) and his assistants, on the one side, and the *patel* (village headman) and *mirasdars*, on the other, with the *deshmukhs* and *deshpandes* (hereditary revenue officers) intervening. The *mamlatdar* would offer terms based on previous payments and on a consideration of the season; and the cultivators would state their objections. There was a good deal of give and take about the arrangement; and, in cases where an agreement could not be arrived at, the simple expedient of dividing the crop was sometimes resorted to, government taking half and the cultivators half. Another element of confusion lay in the additional cesses which were levied on land. Though the *mirasdar's* assessment was fixed, the permanent settlement was of little advantage to him, since he was liable to pay a number of fluctuating cesses, some of which were purely arbitrary. There were in all sixty or seventy of these different cesses. Some fell on particular trades; some on shopkeepers in general; some were of a general nature, such as house-tax and marriage-tax; some fell more particularly on the cultivators, such as cesses on grain, straw, firewood, etc. These latter originally represented contributions to the civil and military establishments in the neighbourhood, but were subsequently converted into money payments. One cess known as *miraspati* was levied on *mirasdars* once in three

years. But the unknown element in taxation was most severely felt in the undefined *jasti pati*, or additional tax, which was levied on landholders as the necessity or the will of the government required. The effect of these additional taxes was most heavily felt by the *mirasdars*, who were permanently attached to their lands, and were the easiest objects of taxation. If the ryot failed to pay the sum that was demanded of him he was liable to be confined in the village *chowki*, to be exposed in the sun, to have a heavy stone placed on his head, and to be prevented from eating and drinking until he had paid up. If this did not succeed, he might be taken to the *mamlatdar* and put in prison, while his cattle were sold. Such rigorous treatment was seldom necessary for levying the ordinary assessment, but was more often employed in extracting the additional cesses.

The above sketch aims at giving a general account of the principles and practice in force during the better times of the Peshwas' government, which were best exemplified by the administration of the great Madhavrao and Nana Fadnavis (1761-96). It must not be supposed, however, that the theory or the practice was anything like uniform from one time to another, or from one tract to another. In some places each class of land had a separate rate imposed on it; while in others the *mirasdars* paid a uniform rate per *bigha*, but the size of the *bigha* varied according to the quality of the land. In some villages lump assessments were paid on blocks of land, while

in others each field had its own assessment. In the hilly country to the west of the Deccan the assessment was fixed by an annual *pahani*, or eye estimate of the outturn of crops, the government share of which, varying with the different crops, was commuted to a money payment; and in other parts the revenue was assessed with reference to the number of ploughs that existed.

Whatever the theory of collections might be, the practice was subject to the annual *jamabandi* settlement effected between the *mamlatdar* and the ryots. Under these circumstances estimates of the incidence of revenue can be little more than guess-work; but it has been roughly estimated that, when the established assessment only was levied, the *mirasdar*, on an average, retained about one-third of the produce as net profits, while one-third went to government, and one-third went for seed, the maintenance of cattle and *hakdars'* dues.

It may be readily imagined that under such a system it made a great difference to the ryot whether the government for the time being was or was not sympathetically administered. The period of good rule under Madhavrao and Nana Fadnavis has been referred to; and it now remains to describe the system which was introduced by Bajirao, the last of the Peshwas, and was found in force in 1818, when the British assumed the administration.

The system consisted in farming out the revenues to anyone who would bid for the right to collect them.

The office of *mamlatdar*, instead of being conferred on a person of experience and probity, was every year put up to auction amongst the Peshwa's attendants, who were encouraged to bid high, and sometimes punished if they showed a reluctance to enter into this kind of speculation. The *mamlatdar*, thus constituted, had no time for inquiry and no motive for forbearance; he let his district out at an enhanced rate to under-farmers, who repeated the operation until it reached the *patils*. Under this system the one object of the farmers and sub-farmers of the revenue was to extract as much as possible during their year of office. A man's means of payment, and not the land which he occupied or the state of his crops, were the scale on which he was assessed. No moderation was shown in levying the sum fixed, and every pretext for fine and forfeiture, every means of rigour and confiscation were employed to squeeze the utmost out of the people before the arrival of the day when the *mamlatdar* was to give up his charge. No complaints were listened to, and the administration of civil and criminal justice was to a great degree subordinated to the business of collecting the revenue. If at the end of the year, when the *mamlatdar* came to make up his accounts, he found that he had not collected sufficient to reimburse himself for what he had paid to the Government for his right to collect the revenue, he imposed a *jasti pati* or extra assessment, and left the *patils* to extort it on whatever pretence or by whatever means they thought proper.

The only villages which escaped lightly were those which could enlist the sympathy of a man with influence at Court. Under this method of farming the revenues, the old system of accounts was for the most part altogether dropped; and, where retained, the figures were found to be purely fictitious. In theory no change of principle was introduced in Bajirao's time, and the system here described must not be regarded as anything more than a temporary excrescence of bad government; but it is interesting as showing to what lengths of abuse a system can be carried which depends on arbitrary considerations, when Government ceases to have the will or the power to act with equity and moderation. Uniformity may be bought at too high a price, and hard and fast rules may cause inconvenience and hardship in some cases; but at any rate they operate against any tendency towards such a state of affairs as is described above. With such examples in mind the early British administrators naturally set much store by accuracy and uniformity; and if the charge of excessive rigidity is sometimes brought against the Bombay land revenue system, it must be remembered that flexibility is a weapon which can cut both ways.

Before turning to the land revenue system established and developed under British rule, a short account of the material conditions of some typical Deccan tracts under the systems described above may be of interest.

Junnar.—The tract of land round Junnar (in the north of the Poona District) had been administered from the date of its cession by the Moghuls up to the reign of Bajirao by the same family of *subhedars*, one of whom, Hari Damodhar, held office for no less than forty-five years. The *havildars*, or subordinate government officers, in this region were also very rarely removed, and almost assumed the character of hereditary officers. The *havildars* every year would settle roughly with the *subhedar* how much they were to collect from the tract, and were then responsible for the detailed settlement with the *patils* and with individuals. This system had in it many of the elements of the farming system of Bajirao's time, which has been described above; but the interest of these *havildars*, who remained in office for long periods, was identified with the prosperity of the villages, and they acted as a useful buffer between the *subhedar* and the ryots, raising loans in bad years to meet the demands of the *subhedars*, and recouping themselves in good years. They kept a running account open with the ryots, and were liberal in the matter of advances and loans. It is probable that under such a system a good part of the revenues raised would not find its way into the government treasury; but this tract was undoubtedly prosperous, and in later years the inhabitants used to talk with regret of the days when each considerable landowner was prepared to take the field in a military expedition somewhat in the character of a gentleman adventurer.

On the accession of Bajirao the old *subhedars* and *havildars* were removed, and all the worst results of the system of farming revenues were experienced. The state of affairs was aggravated in 1802 by the invasion of Yeshvantrao Holkar, whose army spread desolation wherever it went; but in spite of such calamities this tract was found to be in a fairly prosperous condition at the advent of British rule.

Indapur (in the east of the Poona District) appears to have been prosperous in the time of Madhavrao, when much land was under cultivation and the number of *mirasdars* considerable. It was then assigned, for the most part, for the support of troops, who were stationed in all its principal villages. Its decline in prosperity dated from about 1794, when a succession of bad seasons and misgovernment reduced its resources. Its ruin was consummated ten years later by the ravages of a detachment of Holkar's army under Fattehsingh Mane, which so effectually accomplished the work of destruction, seconded by a succeeding famine, that the tract was totally depopulated for six years, after which it was restored on *kowl* by Malhar Mukund. By this *kowl* very easy terms of assessment were given for nine years, and by 1818 the country had recovered somewhat; but the old *mirasdars* had left the district, and few of them ever returned to reclaim their lands.

Bhora.—The tract of country round Mohol in the Sholapur District had many vicissitudes. In the early part of the eighteenth century it was held by a family

of the name of Pandare, who had obtained a *jaghir* from the Moghul Emperors. When it came into the hands of the Marathas by conquest in 1782, many of the villages were depopulated and much of the country was a jungle. The management was then vested in a *mamlatdar* from Poona, by whom the cultivated land was let out on *kowls* of nine years at a low assessment, which was gradually to increase to the assessment fixed by Malik Amber, known as the *tankha*. After eighteen years of careful administration it had attained a high degree of prosperity. By this time the *tankha* rates had been reached, and extra cesses were then imposed, to bring the revenue up to the point which it was considered the circumstances of the tract would permit. The administration was then made over to *zemindars*, and the revenues were assigned to various *sirdars* for the maintenance of troops; but the whole of the nominal revenue is said to have been rarely collected. In 1802 all these *saramjams* were resumed by Bajirao; and in 1804 occurred a great famine, which was succeeded by some years of desolation, after which cultivators were again introduced and given the land on easy terms.

From the above account it will be realized that, with all its flexibility and diversity, the revenue system of the Peshwas used to break down periodically before the devastation of famine and marauding armies, and had to be replaced by temporary expedients suited to the new conditions which had arisen. To

say this is not necessarily to condemn the system; for a land revenue system has yet to be found which will give satisfaction to all alike in times of prosperity and in times of famine. The policy upon which the land system of the Peshwas was based was, at its best, distinctly enlightened for the period. Distress must have been acute amongst the poorer classes in times of famine and of war; but even during Bajirao's *régime* it may be doubted whether the normal condition of the Deccan peasant was so miserable as that of the English peasant at about the same period, when agricultural wages stood at six or seven shillings a week, and wheat sold for 60s. a quarter, and when petty thefts were punished with transportation or with death.

When the British assumed the government of the Deccan in 1818, the first object was to find a suitable basis for administration involving as little change as possible from the old system. There were loud complaints on all sides regarding the injustice and hardship involved by Bajirao's system of farming out the revenues and the imposition of heavy additional cesses. The system of revenue farming was brought to an end, most of the cesses at once abolished, as also were the vexatious transit dues charged on grain; and short settlements were made with the cultivators, on the basis of what each village had paid at the time when the people considered that they had been well governed. In Poona District these settlements were made with the village *patils*, in Nasik District

with the *deshmukhs* and *deshpandes,* and in Ahmednagar District, where much of the country was desolate, a settlement was made with individual ryots. As in earlier times, the revenues thus collected were subject to great fluctuations according to the nature of the season; and in the Nasik District, where this system remained in force for twenty years after the advent of British rule, out of a nominal yearly revenue of about six lakhs the remissions often amounted to from one to two lakhs, while in the famine year of 1824-5 no less than four lakhs were remitted. After this disastrous year, too, the old system of superseding the settlement in times of distress and substituting short leases on easy terms was reverted to in parts of the Ahmednagar District.

This kind of administration, however, was only a temporary expedient, and in 1825 Mr. Pringle was ordered to undertake a detailed revenue survey. With the unsatisfactory results of a vague and ill-defined system as an object lesson before him, he formulated a most elaborate system of land classification which aimed at extreme accuracy. The gross produce of any land, he argued, afforded no basis for assessment, since the cost of cultivation in some cases, and particularly in the case of garden crops, was much heavier than in others. He therefore determined to classify lands on a consideration of the net profits obtained from them. To arrive at this involved the investigation of an infinite mass of details regarding crops, rotations, labour, seed, manure, im-

plements, market rates, etc.; but he held that this labour was necessary, and must be undertaken before he could put forward proposals for an accurate and scientific assessment. He laid down elaborate rules for the guidance of his staff, and pushed forward the work for six years, during which time he completed the survey of the Poona District and parts of the neighbouring tracts. The estimate of the net profits of different kinds of land afforded him his basis for classification and the apportionment of the assessment to the different lands. To fix the actual pitch of the assessment he took in the first instance the former assessment of the land, apportioned it out amongst the lands of the village on the basis of his classification, and then modified it when necessary on a consideration of his estimates of the net profits of the particular classes of land. It may be of interest to give the figures for some typical tracts, and two are selected which have already been mentioned, viz. Junnar and Indapur. For Junnar the former assessment was reckoned at Rs. 4,79,000. Pringle reduced it to Rs. 4,12,000, which was Rs. 58,000 more than the assessment in the *tankha* of Malik Ambar, and Rs. 61,000 less than the *Maratha kamal*. For Indapur the former assessment was reckoned at Rs. 1,75,000; this he raised to Rs. 2 lakhs, being Rs. 60,000 more than the *tankha*, and Rs. 40,000 less than the *Maratha kamal*.

It was unfortunate for this settlement that its introduction coincided with a period of considerable dis-

tress caused by failure of rains. It was subsequently found that in many cases the measurements and classification of lands were inaccurate, and in some cases palpably false, while in unfavourable seasons the pitch of assessment was found to be too high.

In 1835 Lieutenant Wingate and Mr. Goldsmid were ordered to undertake a fresh survey, and commenced the operations which form the ground-work of our present system. In this survey the depth and texture of the soil are taken as the basis for land classification, and the pitch of assessment is governed by general considerations of rainfall, markets and prices, subject to the principle that the assessment shall be such as the cultivators can easily afford to pay. This settlement was first introduced in Indapur, and the result was to reduce the total assessment by 26 per cent compared with Pringle's assessment.

The settlements of other tracts were made with reference to the Indapur assessment, which thus became the standard. The introduction of this settlement was followed by a great increase of cultivation, which in a few years brought five times the previous area under the plough in Indapur, and double the previous area in Bhimthadi. Later writers have awarded much blame to Pringle's settlement and much praise to Wingate's. It may be conceded that the principles of classification adopted by Pringle were over-elaborate, and aimed at too much mathematical precision, particularly in view of the fact that he had an untrained staff and very scanty means of supervision.

But it was not so much on grounds of classification that his settlement broke down as on account of the high pitch of the assessment. In this his settlement was very unfortunate in being confronted in its early days with the unusual combination of bad seasons accompanied by rapidly falling prices, when grain fell to one-third and in the course of a few years steadied at one-half of its previous value. In consequence of this a rupee represented twice the amount of grain which it formerly did; and the incidence of the assessment became far heavier than was intended. If Pringle's system of classification and settlement had been retained, adjusted to the new conditions, and elaborated with the labour and care which have since been devoted to the principles and details of Wingate's system, it is possible that it would have become as accurate as the latter, and also more intelligible.

CHAPTER II.

LAND TENURES AND ASSESSMENTS IN THE DECCAN AT THE PRESENT DAY.

THE history of land tenure and land revenue in the Deccan has now been traced down to 1836, in which year the first instalment of Wingate's settlement was introduced, and with it the principles of the present land revenue survey system, which have since been extended to the rest of the Bombay Presidency. Just as Pringle's system, which aimed at extreme precision and accuracy, denoted a reaction from the vague and indefinite system which preceded it; so Wingate, with the fate of Pringle's unfortunate experiment before his eyes, discarded all attempt at elaboration of principles, and made extreme simplicity the basis of his proposals.

Under the present system the land classification is based on the depth and texture of the soil and on other minor physical features which can be easily and definitely ascertained. The pitch of the assessment is regulated not on a consideration of the gross outturn of crops, as was the case, in theory at any rate, under previous Governments; nor on a consideration

of net profits, which underlay Pringle's settlement; nor on a basis of any fixed proportion between the Government assessment and the rents that are obtained by private landholders, such as is adopted in some parts of India. No doubt weight was given to these and similar considerations in fixing the pitch of the original assessments, and weight is given to them whenever revision settlements are introduced. The only fundamental principle, however, of the present system of pitching assessments is the somewhat indefinite one that no more should be asked from the cultivator than he can easily afford to pay.

Government is often spoken of as the "supreme landlord," which is a sufficiently vague term. Under some previous governments the application of this term would have been more appropriate to the theory of the situation; and in the days when the government demands were so high as to cover everything that the cultivator could pay in the way of revenue or rent, the position of government to the land was practically one of absolute ownership. Waste lands still vest in Government; but so far as occupied land is concerned the British Government has for the most part divested itself of such exclusive ownership, while retaining that "protective ownership" without the assertion of which, according to Hindu lawyers, "there can be no certain rule for the protection of the subjects". The Government assessment has been designedly fixed at a rate which will not exclude the payment of rent, and which therefore confers on the

landholder a distinct property in the land. In the majority of cases in the Deccan the rents paid to landholders for the use of the land are from three to four times the assessment, while rents of six or eight times the assessment are not uncommon, and in the case of garden lands the rents often amount to thirty or forty times the assessment, and more.

The law which defines the present system of land tenure and assessment is embodied in the Bombay Land Revenue Code (Bombay Act V of 1879). The *mirasi* and *upri* tenures of olden days have been merged into a uniform tenure known as the survey or occupancy tenure. Full occupancy tenure is a heritable and transferable property, which allows the occupant to hold the land in perpetuity and to cultivate it himself or to lease it to others for cultivation, subject to the payment of land revenue. The land revenue is a tax which has some of the characteristics of rent, and varies from field to field according to the fertility of the soil and other natural advantages. The tenure is known as ryotwari: that is to say, each landholder holds his land direct from Government.* It reproduces in the main the features of the old *mirasi* tenure, but differs from it in four respects, viz. :—

(1) The occupant has the right to sell or otherwise alienate his land without the permission of Government.

(2) Failure to pay the assessment renders the occupancy liable to forfeiture.

(3) The assessment is liable to revision every thirty years.

(4) A guarantee is given that no additional taxation will be levied on account of improvements made by the occupant.

It has already been stated that it is doubtful how far the *mirasdar* of olden times had the right to sell his land without the consent of government. The question is, however, one of merely academic interest, since in point of fact he very seldom did want to sell his land; and, during the period which immediately preceded the assumption of government by the British, *mirasi* land had no sale value.

It was a deliberate part of Wingate's policy not only to give the landholder a definite property in the land which he occupied, but to allow him to alienate it freely. He expressed his views thus: "the most effective means at our command for preventing the land becoming the inheritance of a pauper, or at least a poverty-stricken peasantry, is to afford the greatest possible facilities for its conveyance from one party to another; so that when a cultivator becomes impoverished, and by his inability to cultivate properly, deprives the community of the wealth it is capable of producing, the land may get into the hands of some one better able to turn it to advantage". It was anticipated that under a system of free transfer traders, pensioners and others would be induced to lay out capital in the purchase and improvement of land, to the great benefit of agriculture and the com-

munity at large. To some extent this expectation has been fulfilled. But it was not foreseen that large numbers of cultivators who were deeply attached to their lands and had no desire to part with them, would under the new conditions divest themselves unwittingly of all property in their lands, which would, by the action of the unfamiliar civil court, pass into the hands of money-lenders.

This took place, however, and led to the Deccan riots of 1875, and to the remedial measures by which Government attempted to stem the tide, viz., The Deccan Agriculturists' Relief Act, which aimed at checking the tendency, deliberately set in motion by the Government itself, for the land to pass freely from one class to another. These matters will be dealt with in more detail in Part III (*vide* p. 86). The only other measure of this nature that need be mentioned here is the amendment of the Land Revenue Code in 1901, making it legal for Government to give out unoccupied land on a restricted tenure, one of the features of which is that it cannot be alienated at the will of the holder or by the action of the Civil Court, without the consent of Government. This is a partial reversion to pre-British ideas on the subject. Some measure of this kind was felt to be necessary in the interests of the more backward cultivators, and in particular of wild tribes, for whom the right of free transfer meant the inevitable and speedy loss of their lands. It was not intended to be of general application; and, inasmuch as this restricted tenure

can only be applied in cases where unoccupied land is given out for cultivation, its scope has been very limited. During the ten years that have elapsed since the Act was passed only some 300,000 acres have been given out on this restricted tenure in the Central Division; and this land is situated almost exclusively in the parts of Khandesh which are mainly inhabited by Bhils.

The change by which the settlement is subjected to revision every thirty years opens up the much-debated question of the rival merits of a permanent as against a periodic settlement. Under the present system the settlement is not permanent; but it has many elements of permanency. To be more precise, the assessment is fixed for a period of thirty years. At the end of that period it is not possible for Government to vary the rent of any one field as against any neighbouring field, for the classification already made has been accepted as final; but the general pitch of assessment for a tract is liable to variation, on a consideration of a change in general conditions. The points to which attention is paid on such occasions are the general prosperity of the tract, the ease with which the revenue has been raised under the previous settlement, the development of the tract by means of improved communications, any rise or fall in the purchasing value of money, the price obtained for staple products, and the value of land as evidenced by the sums paid for occupancy rights, and the scale of rents charged.

It has already been stated that, at the first introduction of the present survey system (1836), large and general reductions of assessment were made. During the period which followed the country reached a very high standard of prosperity. Its condition was in many respects materially changed. Instead of large tracts lying waste, all the cultivable land was brought under the plough. The country was supplied with carts, and good roads were constructed, bringing to an end the tedious and wasteful carriage on pack-bullocks along a jungle track. The railway, the construction of which poured money into the villages by the wages of labour and carriage, traversed the richest part of the region. A series of extensive public works was commenced in Poona and the neighbourhood, which gave employment to those who needed it and added to the money floating about the country. Prices of produce and wages increased; with a large revenue to pay on the larger area of cultivation, remissions of revenue became unknown; and capital was invested in the making of wells and the reclaiming of waste land. The cycle of prosperous years culminated in the era of the American war (1862-6), when Deccan cotton fetched three to six times its usual price, and the market price of other agricultural products rose enormously.

It was about this time (1867) that the first revision settlements of the Deccan began to fall due. In view of the circumstances of the past thirty years during which the original settlements had run,

a general increase of rates took place. To take as examples two tracts which have already been considered, viz., Indapur and Junner. In Indapur the average rates varied as follows :—

	Annas.	Pies.
In 1840 average rate	5	5 per acre
In 1870 „ „	7	4 „ „
In Junner.		
In 1844 average rate	11	1 per acre
In 1874 „ „	12	0 „ „

For the whole Deccan the effect of the first revision survey may be shown as follows :—

District.	Original Survey. Average Rate per Acre for all Classes of Land.			Revision Survey. Average Rate per Acre for all Classes of Land.			Increase per cent.
	Rs.	As.	P.	Rs.	As.	P.	
Khandesh	1	2	6	1	8	2	30
Nasik	0	9	4	0	11	6	23
Ahmednagar	0	8	2	0	9	4	14
Poona	0	8	1	0	9	8	20
Sholapur	0	6	5	0	8	1	26
Satara	0	10	6	0	12	9	12

The rates still remained extremely moderate, and had the conditions continued the same as during the past thirty years the increase would not have been felt; but the tide of prosperity had turned. In 1866-7 the country suffered from a severe drought, and in 1867-8 there was a partial failure of crops. In 1870-1 the expenditure on public works was greatly

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reduced; and in that year prices, which had maintained themselves for some time after the cessation of the American war, began to fall steadily till in 1875 an amount of grain could be bought for four annas which in some tracts a rupee would hardly have purchased five years before. The change was soon felt throughout the Deccan, and the people were not slow to connect their altered circumstances with the most obvious cause that they could understand, viz., the enhancement of the assessment. The combination of events was most unfortunate, and to some extent recalls the circumstances of Pringle's settlement. It certainly created a distrust of revision settlements which has not yet died out. In 1900, when the second revision settlements began to fall in, the Deccan was suffering from a severe famine, and in the ten years that have succeeded the assessments have for the most part been left alone. In only six *talukas* have second revision settlements been introduced. In five cases they resulted in an increase of one anna per acre on the general average; and in one taluka in a very slight decrease. The history of the first revision settlement shows clearly that in revising settlements regard must be had not only to the superficial facts from which material progress or prosperity is inferred, but also to the causes of those facts and to the probability of their continued operation during the period for which new rates are to be imposed.

From the purely financial point of view it does not make much difference to Government whether the

taxation which it levies from cultivators is raised under the name of assessment or some other name. The main consideration is that it should be assessed *on equitable considerations.* Assuming that a permanent settlement were made and that additional revenues had to be raised to meet public charges, fresh taxation must be imposed. Under the permanent settlement of the Peshwas' government additional and fluctuating cesses of various kinds and of various names were imposed on the cultivators; and it is not obvious what advantage they derived from the abstract consideration that their assessment was not subject to enhancement. The same is the case in China to the present day. By an edict of the Emperor Kang Hsi in the year 1710 it was declared *that the land assessment in China was not subject to* enhancement. In view of this edict the land assessment has never been enhanced; but a grain tax and other cesses have been imposed which fall entirely on the cultivator and are paid by him together with his land assessment, with the result that the Chinese cultivator now has to pay in direct taxation about *three times as much as the figure of his unalterable* land-tax.

It has already been stated that it is a special feature of the Bombay system that a specific guarantee is given against any increase of assessment due to improvements effected by the cultivator. This was the point that Arthur Young had in mind when, at the end of the eighteenth century, he contrasted the

Belgian land system with the English, and talked of "the magic of property which turns sand into gold". The Bombay land system, in fact, aims at giving the cultivator the greatest security of tenure, while reserving to the State the right to appropriate at intervals some part of the unearned increment in value resulting from causes beyond the control of the cultivator. It is said that the liability of the assessment to revision causes a feeling of insecurity; and it must be remembered that in olden days any increase in assessment or rent was regarded in most countries, and often justly, as an attempt to tax the cultivator on his own improvements; and the resentment which this was liable to cause generally led Governments or landlords to adopt some other expedient, or, at any rate, to disguise the process. Even in England it was impossible up to the end of the sixteenth century for landlords to raise rents except indirectly. With the experience of the past before us, it is not a matter of surprise that, even with its guarantee against the taxation of improvements, the power of revising the settlement should be viewed by some with suspicion. This suspicion is, however, wearing away, as the true nature of the case becomes better known. Every year thousands of cultivators effect permanent improvements in their lands, with the knowledge that these will not be taxed; and it may be doubted whether any man who really wants to improve his land is deterred from doing so by any fear of enhanced taxation.

A change of some importance to the cultivator in connexion with the payment of his assessment has been introduced of late years. In fixing the assessment very low under the present system the theory was that the sum fixed was to be paid regularly every year, whatever might be the nature of the season, and that a cultivator would save in good years enough to enable him to pay his assessment in bad years. Remissions and suspensions of land revenue were granted in bad years, but as a matter of favour and not as a matter of right. In the series of bad seasons which occurred between 1896 and 1903 difficulty was experienced in collecting the revenne, and the system of collecting revenue was subjected to much criticism on the ground of its excessive rigidity. In 1904 it was decided to introduce a system of automatic suspensions and remissions of revenue, which should be given to cultivators in bad years, not as a matter of favour but as a matter of right. Rules were framed fixing a sliding scale of suspensions and remissions of revenue, based on a consideration of the season; and these have now been introduced as an integral part of the Bombay Land Revenue system. In the five years from 1904-5 to 1908-9, large sums have been suspended from year to year in accordance with these rules; and in the Central Division alone a total sum of Rs. 64 lakhs has been remitted, of which Rs. 20 lakhs were remitted in the year that the assessment was due, and Rs. 44 lakhs were first suspended and subsequently remitted.

Though it is a general rule that all land is held subject to the obligation to pay land revenue, there is a class of land which is held wholly or partially free from the obligation to pay the full assessment. Such land is known as alienated land. It consists of lands held as religious endowments, land held as a return for some services that the holder is expected to perform either for the community or for Government, and lands which were assigned by previous rulers to their friends or officers either as presents or as rewards for services performed. The lands of the last class, which are the most important, are known as *inams* or presents. A holder of one of these *inams* will in this way often draw the revenues of several villages. The loss of revenue to Government which arises from the existence of these alienated lands is considerable. In the Central Division alone out of a total number of 8000 villages 1000 are alienated; and the net loss to the public revenues resulting from these alienations amounts to Rs. 23½ lakhs annually. This is, of course, a legacy from the past; and the rights involved have been formally recognised by the British Government.

The extent to which the Peshwas were accustomed to alienate their revenues in the Deccan is well brought out by the accounts for Poona Prant in 1773-4, which were as follows:—

Total number of villages in Poona Prant	290
Deduct 56 villages assigned for the maintenance of forts, leaving	234
Deduct one which pays no revenue	233

The tankha assessment on these 283 villages is	Rs. 2,96,795
Revenue alienated	Rs. 2,13,061
Remainder for collection	Rs. 83,734
Of which the sum realizable is . . .	Rs. 53,166
Miscellaneous items bring the total up to .	Rs. 87,989

The Peshwas' Government was, of course, able to alienate its Deccan revenues with comparative impunity, since large sums were coming in from Gujarat, where the revenues were farmed out for Rs. 11,21,000 a year; from Bundelkhand, which sent large sums under the name of *nazar, peshkashi*, presents, etc.; and from other territories which the Marathas had put under tribute. These revenues were available for spending in the Deccan. In the present day no such relief is possible; and these alienations constitute a steady drain of what would otherwise be public revenues.

Before leaving the subject of revenue assessments altogether there is one point that may as well be mentioned. Comparisons are sometimes made between the revenues that are raised from the land in the present day and those that were levied at some previous period. Any comparisons that affect to compare the total revenues raised at two different periods in a tract, or even in a single village, are liable to be fallacious, unless the exact area of the land for which the revenue is paid is known in each case. In olden days the area of cultivation in the Deccan was relatively so small, and fluctuated so considerably from one time to another, that such comparisons are not often possible. In cases, however, where actual rates

per unit of land are given in the old records a basis for comparison is possible. Such comparisons are nowadays of merely academic interest, and, if they are to be really effective, adjustments ought to be made to cover the variations that have taken place in the purchasing value of the rupee.

A few such comparisons, however, are given for what they are worth, in connexion with the assessments levied at various dates on typical dry crop and garden land. They give a fair idea of the working of the various revenue systems.

KASBA WALVA (SATARA DISTRICT).

Date.	Details.	Rate per Acre.
1712-3	Alluvial land — Rs. 7½ per bigha Priest's land — Rs. 3 " " Black soil — Rs. 5 " " Inferior soil — Rs. 4 " "	The old bigha of this tract was very variable and represented anything from one to two and a half acres. It is therefore impossible to calculate the rate per acre in old times.
1729-30	Alluvial soil — Rs. 9½ per bigha Black soil — Rs. 7½ " " Stony alluvial — Rs. 5 " " Stony black — Rs. 2 " "	
1774-5	Rs. 7 to Rs. 7½ per bigha	
1806-7	Rs. 1¾ to Rs. 6½ per bigha	
1816-7	Rs. ¾ to Rs. 6½ per bigha	
1909-10	Jirait . . . — Rs. 3¼ per acre average rate	

The following details of revenue collections are available :—

1712-3.

Total occupied area 411 bighas.

Deduct 27 bighas of which the crops were ruined by troops, and 52 bighas of Inam land.

Remainder 332 bighas assessed at . .	Rs. 1606	
Add *jasti pati* (additional tax) . .	Rs. 645	
Total	Rs. 2251	
Deduct remissions	Rs. 200	
Total collected	Rs. 2051	on 332 bighas

1774-5.

Revenue collected	Rs. 7632	on 1102 bighas

1816-7.

Land under cultivation 535 bighas.

Assessment	Rs. 3088	
Cesses	Rs. 2212	
Additional charge levied for Gokhale's army and for gosavis[1]	Rs. 2151	
Total	Rs. 7451	
Remission for failure of crops . .	Rs. 2989	
Total collected	Rs. 4462	on 535 bighas

1909-10.

Revenue collected	Rs. 81,416	on 9607 acres

[1] At this period gosavis were enlisted in special regiments.

SUPE KHURD (AHMEDNAGAR DISTRICT).

Date.	Details.	Rate per Acre.
1760-1	Jirait rate Rs. 10 per rukha (=5 bighas=3¾ acres)	Jirait—Rs. 2⅔
1909-10	Maximum rates per acre Bagait — Rs. 2 Jirait — 8 annas	Bagait Rs. 1¼ (Average) Jirait 7 annas (Average)

KASBA INDAPUR (POONA DISTRICT).

Date.	Details.	R te per Acre.
1690-1	Gross produce estimated at 44 *khandis* of grain, half of which is taken as the Government share	
1715-6	Bagait (garden land) Rs. 14 per bigha Jirait (dry crop land) Rs. 70 per chahur (=120 bighas=90 acres)	Bagait — Rs. 18⅔ Jirait — a. 12 p. 5
1782-3	Bagait Rs. 10 per bigha Jirait Rs. 85 per chahur	Bagait — Rs. 13⅓ Jirait — 15 annas
1909-10	Bagait — Re. 1-2 per acre } maximum Jirait — Re. 1-2 per acre } rates	Bagait—11 annas (average) Jirait — 5⅔ annas (average)

The revenues raised in this village at various dates were as follows :—

1732-3	Rs. 2105
1754-5	Rs. 9889
1764-5	Rs. 10,265
1774-5	Rs. 12,245
1818-9	Rs. 8166
1909-10	Rs. 22,949 on 8576 acres

KASBA SINNAR (NASIK DISTRICT).

Date.	Details.	Rate per Acre.
1712-3	Rs. 10 per bigha	Rs. 13⅓ per acre
1732-3	Rs. 9 ,, ,,	Rs. 12 ,, ,,
1760-1	Rs. 15 ,, ,, (calculated)	Rs. 20 ,, ,,
1808-9	Rs. 7 ,, ,, (,,)	Rs. 9⅓ ,, ,,
1909-10	10 annas per acre (Jirait) Rs. 7-12 per acre (Bagait pat-asthal)	10 annas per acre (Jirait) Rs. 7-12 per acre (patas-thal)

Details of revenue collections.

1732-3	Rs. 25,806	collected on	2208	bighas
1760-1	Rs. 25,657	,, ,,	1647	,,
1808-9	Rs. 13,647	,, ,,	1910	,,
1909-10	Rs. 19,828	,, ,,	10,629	acres

PAUD (POONA DISTRICT).

Assessment on rice lands in 1818.

For Brahmans	Rs. 18 per bigha	= Rs. 24	per acre
For the Deshmukh . .	Rs. 15 ,, ,,	= Rs. 20	,, ,,
For the Inamdar . . .	Rs. 5 ,, ,,	= Rs. 6⅔	,, ,,
For Kunbis	Rs. 28 ,, ,,	= Rs. 37⅓	,, ,,

This represents the assessment imposed under Bajirao's regime : a quite impossible rate of assessment, which could never have been paid.

Present average rates . . . Rs. 8 per acre, for rice lands

A common method nowadays of testing the moderation of the revenue demand is to compare it with the gross outturn of the land. Taking the four staple dry crops of the Deccan, viz., jowari, bajri, wheat and cotton, and making allowances for poor soil and bad cultivation, the average Deccan outturns per acre in a normal year may, at a very moderate estimate, be taken as follows:—

Jowari	590 lb.,	value	at	present	rates	Rs. $18\frac{2}{3}$
Bajri	350 lb.,	,,	,,	,,	,,	Rs. 13
Wheat	458 lb.,	,,	,,	,,	,,	Rs. $21\frac{3}{8}$
Cotton (lint) . . .	90 lb.,	,,	,,	,,	,,	Rs. 30

The above figures take no account of jowari stalk, straw, etc., which have a considerable value, nor do they deal with irrigated lands, in which the value of the produce is far greater than in dry crop lands. Even if we take the average normal outturn of the major dry crop produce at a value of no more than Rs. 20 per acre, it will be seen that the average assessment of $13\frac{1}{8}$ [1] annas per acre works out at about 4 per cent on the value of the total produce; and it must be remembered that the average of $13\frac{1}{8}$ annas per acre includes the assessments on rice and garden lands, which are much higher than those on dry crop lands. In short, looking at the assessments in the Deccan from any point of view it must be admitted that they are very moderate and equitably distributed. *If cultivators are not always able to pay them, the cause is* due not to the assessments themselves, but to other matters which will be discussed in subsequent chapters.

[1] This average is obtained by dividing the total assessment of the fully assessed occupied area by the number of acres

CHAPTER III.

THE DISTRIBUTION AND NATURE OF THE LAND.

THE land itself is divided into small holdings which average from twenty to thirty acres apiece in the West Deccan, and from thirty to fifty in the East. About five-sixths of the land are held by the cultivators themselves direct from Government, and about one-sixth is held by non-agricultural classes and leased out to cultivators. It will thus be realized that most of the land is divided into small holdings, worked by the cultivator himself and his family, with probably the assistance of some hired labour at certain seasons. The typical advantage which economists ascribe to such a system is that the cultivator and his family live on their holding, and devote their full and constant care to the raising of crops and the permanent improvement of the land, making up for deficiency of capital by strenuous labour, and realizing a high standard of intensive culture. Now there are some localities, mainly in the Western Deccan, where these advantages are, to a considerable extent, obtained. In the garden tract to the north of the Poona District, for instance, many of the old village

sites have been almost deserted, and the people have gone to live in hamlets or isolated houses, adjoining or situated on their holdings. Here will be found land well tilled, levelled and embanked; a leguminous crop sown the moment that the kharif cereal has been reaped; well-kept fruit and vegetable gardens and well-managed irrigation, to provide for which the cultivator will begin to work his well before daylight and continue after dark; the owner on the spot, ready at all times to improve and guard his property. This is as it should be; but it is anything but general. Over much of the Western and most of the Eastern Deccan the cultivators' houses are confined to the village site, from which many of the fields are three or four miles distant. Into the confined space occupied by each family are crowded the cattle and implements, with the manure heaps scattered about outside the village. For a great part of the year the fields are deserted. The women and children seldom visit them; the cultivator himself only to perform the minimum of field work which the current crop demands. Even when the critical season of sowing is on him, and it is essential to get the seed in quickly before the moisture dries out of the soil, he may often be seen starting for his distant fields about nine o'clock in the morning, when the sun is already getting hot, and he ought to have been at work for hours. Under these circumstances tillage is neglected, and no permanent improvements are made; the land remains uneven and unembanked, and the lowest part of the

field, which gets most water, and should, in an arid tract, be the most fertile, is so subject to scour that it often produces practically nothing.

There are several causes which have contributed to confine the houses to the village site. It is only a century since the country-side was subject to the depredations of marauding armies and ravaging bands of robbers; and the substantial walls and fortifications still to be seen in many places tell their own tale. Even in the present day, in parts where wandering tribes of Lambanis, Haran Shikaris and Phansepardhis are common, there is danger for the isolated dweller in the fields, and serious risk of theft to the man who grows a valuable garden crop. Another reason is the absence of drinking-water. The village sites have their public wells; but a man must have a private well if he is to live in his own holding. The direct advantage to agriculture of irrigation wells will be dealt with under the headings of "labour" and "capital"; but the indirect benefits which they confer in permitting cultivators to live on their own holdings can hardly be overestimated.

The average size of holdings has already been stated to be from twenty to fifty acres. This, however, unfortunately represents the nominal, and not the actual distribution. Even at the time of the original survey this recognition of holdings was somewhat fictitious, so far as the real distribution of the land went, inasmuch as it recognized subdivisions only within defined limits. Since then the subdivi-

sion of holdings and the transfer of subdivisions have gone on apace; and in the majority of cases holdings of the reasonable sizes mentioned above exist only on paper. From the revenue point of view this change has been recognized; and a new basis for classifying holdings is being introduced in place of the old fictitious one. Inquiries have recently been made regarding all existing rights in land, and a permanent record of rights is now kept. When the information contained in this record has been analyzed it will be possible to say what is the size of the real holdings.

Inquiries made in three villages in one of the driest parts of the Deccan (Dhond Petha) show that in a total cultivated area of 8500 acres there are 206 real holdings, amongst which the land is divided as follows, viz.:—

Size of Holdings.					
Under 5 acres	41	holdings	in	66	plots.
5 to 15 ,, ...	76	,,	,,	111	,,
15 to 25 ,, ...	30	,,	,,	62	,,
25 to 50 ,, ...	35	,,	,,	82	,,
Over 50 ,, ...	24	,,	,,	142	,,

There are no irrigation wells or other facilities for irrigation. The majority of the holdings are under fifteen acres, and are not economic holdings. They will not support or employ all the year round a cultivator and his family, or a pair of bullocks. In point of fact most of these holders do not keep bullocks of their own, but trust to the unsatisfactory system of hiring bullocks to perform their field operations. In

a more fertile or better irrigated tract the size of the holdings would rule smaller; and, taking the Deccan as a whole, it is certain that in very many cases the size is so small that the holding is unable to support the cultivator and his family, which constitutes a serious obstacle to effective production or the economical use of labour. Nor must it be supposed that even these attenuated holdings consist of solid blocks of contiguous land. The several plots making up a holding are frequently scattered throughout the village lands; and in many cases subdivision of garden land has gone so far that plots may often be found of only one-fourth or one-tenth of an acre. This is, of course, not peculiar to India. In France there are several Departments in which subdivision has reduced the size of the average plot to less than one acre. With land so subdivided the difficulty of proper development, the loss of time and supervision involved, and the liability to disputes regarding the passage of water channels, etc., constitute a serious drawback, which has in some countries prompted measures for the readjustment of boundaries. A very remarkable case of such measures which occurred in Saxony is officially vouched for. The village in question contained nearly 1500 acres belonging to thirty-five proprietors, and had in the course of time become divided up into 774 separate plots, averaging about two acres each. The readjustment reduced the number of plots to sixty, of about twenty-five acres each; nearly ten acres of unnecessary roads and boundary

fences were saved, while at the same time communications were improved. The operations were completed within a year and cost less than Rs. 2000, which was more than made good by the ten acres gained. The immediate result was that it was found necessary to add to the storehouses to make room for the increased produce.

To turn now to the land held by non-agriculturists; the law regarding it is of the simplest. It has not been found necessary to fix any limit to the rent that may be asked, nor to provide for securing to the tenant the value of any improvements that he may make. The rent may be agreed on at any rate, in money or in kind, between landlord and tenant: either a fixed amount or a share in the total produce. When no definite agreement is made, it is held to be governed by the custom of the locality. For the recovery of the rent in ordinary cases a simple process is provided in the *mamlatdar's* court, obviating the necessity for civil litigation. Now the majority of leases granted are annual leases, and in a large number of cases applications for assistance in recovering their rents are annually made in the *mamlatdar's* court. Under these circumstances, with landlord and tenant pulling in opposite directions, it is obvious that good cultivation is unlikely, and permanent improvement of the land impossible. The landlord looks merely to his rent, and the tenant tries to extract what he can out of the land with the minimum of labour. From the economic point of view nothing could be more unsatisfactory. In

cases where the lease is longer, and the rent consists of a share of the produce, both get an additional interest in improving the cultivation; but nothing in the nature of permanent improvement is likely to result. This system of giving short leases of unimproved land to any tenant who will agree to pay the rent, and trusting to extract it from him with the help of the *mamlatdar*, must be as unsatisfactory to the landlord as it is from the general point of view. Some landlords have inherited family land, others have bought land as a safe investment, but have either no inclination or no time to interest themselves further in the matter. The sooner they realize that they cannot expect to get the best profit from the land unless they select good tenants and make it worth their while to treat the land properly, the better it will be for all parties. From the above remarks it might be inferred that some legislation is required to protect tenants and secure to them the value of any improvements they may make in the land. It is very doubtful, however, whether any such action is called for; and it is unlikely that it would be possible by this means to stimulate tenants into making permanent improvements, for which they show at present little inclination. At any rate there are other directions in which the possibility for progress is far more clearly indicated.

Fortunately there exist in the Deccan many examples of admirably adjusted arrangements between landlord and tenant, under a system closely analog-

ous to the French *metayer* tenure. This consists of a partnership between a landholder of means and a cultivator, extending over a period of years, often a life-time, whereby the former finds the land and much of the capital, and to some extent directs operations, while the latter supplies the labour and the rest of the capital. This arrangement often results in profitable improvements being effected by the landlord, and skill and diligence being applied by the tenant, thereby achieving a very efficient degree of cultivation. Where the landlord further takes the trouble to acquire a knowledge of advanced agriculture and devotes his intelligence to the enterprise, this system is probably the best possible; and it would be a distinct gain to the rural economy of the Deccan if it were more common.

The holdings of non-agriculturists naturally tend to be larger than those of actual cultivators; but the same difficulty occurs in their case as with the smaller holdings. Just as a small cultivator's fields often consist of half a dozen plots scattered throughout the village lands, so the larger landlord is usually handicapped by the fact that his lands are scattered through half a dozen villages. This is generally the case with the service lands held by *deshmukhs* and *deshpandes*, and does much to prevent them from taking any personal interest in the cultivation or development of their land.

There is another matter of some interest to which reference must be made. In a country of small hold-

ings, where the organization of agriculture is backward, common grazing land appears to be almost a necessity. In many parts of the Deccan it is very deficient, and suggestions are frequently made for increasing the grazing area; while it is often alleged that the existence of Government forests, and the rules made in connexion with them, are the cause of deficiency of grazing. As a matter of fact, the Government forests provide a large part of the common grazing that exists, and over most of the Deccan very little more relief in this direction can be expected from them. The forest area amounts to 6363 square miles. A very large part of this lies in the mountainous parts of Khandesh and along the Western Ghats, and could not in any case serve as a common grazing land for the cattle of the cultivators who till the open plains of the Deccan. Apart from this consideration, however, the forests do at present afford a large area of common grazing, as the following figures will show:—

	Sq. miles.
Area of forest open to all animals all the year	1798
" " " cattle but closed to sheep and goats	2752
" " open for part of the year	795
" " closed all the year	1018

This closed area of 1018 square miles, which forms less than 3 per cent of the whole Deccan, could hardly be much further reduced if any reasonable provision is to be made for timber and fuel in a tract where both are already exceedingly dear; nor would any considerable advantage to the general body of

cultivators result even if the whole of this area were thrown open to grazing: for in common land production is and must of necessity be very small, since it is the business of no one to look after the land or assist Nature in any way. Even good land will bear but little under these conditions; and the stony uplands which constitute so large a part of the so-called forests of the Deccan will bear less. Any one who, in a tract of seasonal and precarious rainfall, trusts to such land for the support of his cattle is merely courting failure, as the terrible cattle mortality during the recent famines proved.

The pinch has been felt of late years owing to the great extension of cultivation. A century ago enormous tracts in the East Deccan containing much good land were lying waste, and provided grazing for cattle; while now it may safely be said that, apart from forest, there is practically no land capable of growing a fair crop of grass or anything else which is not occupied. In this connexion the experience of England is instructive. In that country the small farmer of the fifteenth century had abundant common pasture. The rate of production from his land was small, and without the common pasture it would have been impossible for small farming to have paid. Enclosures of land were always resented; and though they took place, England remained a country of small holders till the end of the eighteenth century, and the commons for the most part remained. The Enclosure Acts of the

eighteenth century deprived the people of their common grazing lands; and the results would have been very serious had it not been for the change that came over agriculture at the beginning of the eighteenth century, a change which really paved the way for the Enclosure Acts. Winter roots and artificial grasses, unknown before, were then introduced; and with the new system of fodder crops and rotations came the scientific feeding of cattle and sheep, and their vast improvement by systematic breeding and selection. The movement which resulted in consolidating the holdings and driving the yeoman farmer from the land was not felt till the nineteenth century; and though it was connected with the changed conditions of farming, it cannot be ascribed in large measure to the enclosure of commons. With a well-organized system of agriculture the small holder still thrives in other countries without the help of common land.

The methods of Europe are not, of course, applicable to a tropical country with a seasonal rainfall. There are however many ways in which the fodder supply of the Deccan can be improved, and the matter is one to which attention may be profitably given. The rising prices of cattle will, before long, suggest new ideas to the cultivator, and the increase of irrigation will make increased fodder production possible. Meantime the cultivator is confronted with a situation which he does not understand; and he misses his old grazing grounds.

It has been stated that large areas of waste land were taken up between 1840 and 1870. By the latter date in most parts of the Deccan there was very little good waste land left. Since then the area of occupied land has increased at a much slower pace, and the land taken up has mostly been inferior land; so that in the present day considerable areas of very poor land are cultivated every year. The cultivation of such land is not necessarily uneconomic. It requires little labour or capital; and if, by spending Re. 1 per acre a man can raise a crop worth even Rs. 5, he has no reason to be dissatisfied. When, however, the rainfall is scanty or badly distributed, these light lands are the first to suffer; and the fact that a considerable area of such land is cultivated in a tract of precarious *rainfall introduces into the farming* system an element of speculation in which the odds are against the farmer. It has been claimed as evidence of prosperity that so much waste land was taken up during the last century; and to a great extent this contention is justified. It is certainly a cause for satisfaction when good land is brought under the plough and well cultivated. *Per contra* it is sometimes argued that the fact that the area of cultivation is not now materially increasing is evidence of want of prosperity. Before this can be admitted the nature of the available waste land must be considered; for it affords no cause for satisfaction to any one, least of all to the farmer, that an attempt should be made to raise a crop on inferior land incapable of retaining

moisture. The fact is that cultivation has already extended to poorer land than is desirable; and a diminution in the cultivated area is to be wished for rather than an increase. The good lands are far from being fully developed or worked. Many of them are in such a state that they produce little or nothing; and if the labour now spent on the poor lands could be devoted to the improvement and more effective cultivation of the good lands, it would be the better for all concerned.

The fact that much of the land is continuously cropped, and that little of it is systematically manured, has led to the formation of a hypothesis that the fertility of the soil is steadily decreasing; and this hypothesis has been accepted by some as a fact. Dr. Voelcker, in his report on "The Improvement of Indian Agriculture" (1893), has given currency to this idea. Starting from the proposition that a country which exports both crops and manure must be declining in fertility, he works down to a comparison of yield of wheat per acre in England and in India, and concludes that the relatively small outturn per acre in the latter country proves that the land in India is becoming exhausted. In so far as his argument merely calls attention to the fundamental principle of agricultural chemistry, that the losses to the soil of available plant food must in some way be repaired, it cannot be too strongly insisted on; but when it claims to demonstrate that the outturn per acre is steadily decreasing it becomes necessary to ask what

positive evidence there is to justify this conclusion. The idea is that new land when first brought under cultivation must have yielded very heavily, and now yields far less, since it is suffering from exhaustion. In the Deccan, at any rate, there is no evidence of the large yields that are supposed to have been obtained from land newly brought under cultivation. The old reports all refer to the foul state of the black soils infested with deep-rooted grasses, which greatly reduced the outturn. When a cultivator is a good enough farmer to keep his land clean, he is usually intelligent enough to appreciate the value of manure. As clean cultivation extends the use of manure must extend; and it will do so. The trouble in the Deccan was the same in the past as it is at present, not that the land produced too much, but that it produced too little. It has never had a chance of exhausting itself. Plant food is a very important element in the production of crops; but it is only one of the factors that regulate the gross outturn.

We have now traced the land policy of the past and have considered the present condition of the land, noting the losses which many a cultivator suffers from the inadequate size, fragmentary nature and distant situation of his holding. We are therefore at last in a position to take a general review of the whole case.

The basis of the early British land policy was the principle laid down by Wingate in 1835, of affording the greatest facilities for the conveyance of land from one party to another. Since 1875 there has been

reaction against this policy; and the Deccan Agriculturists' Relief Act (*vide* p. 86) and the Amendment to the Land Revenue Code of 1901 (*vide* p. 22) have been introduced in restraint of free transfer. These measures, however, never claimed to be more than palliatives. No fresh constructive land policy has been introduced; and if we now look for a basis of the existing land policy, we can only find the principle of free transfer which was formally recognized in 1835, and has been more than half discredited since 1875. The checks that were sought to be placed on the free transfer of land have never had much effect; and the land continues to change hands. From time to time the condition of the peasantry has demanded attention, and that attention has of late years been directed on other aspects of the case. Under the stress of vigorous criticism much consideration has been paid to land revenue policy, to the pitch of assessments and to the subject of indebtedness. These matters are all important in their own way; but to deal with them is hardly to offer a substitute for a constructive land policy. The fact that the cultivator often finds it difficult to pay his assessment, the fact that he readily runs into debt and seldom extricates himself from it, the helplessness of some and the apathy of others, these matters have attracted general attention and suggested remedies. They are, however, merely symptoms of a general disease, and that disease lies in the distribution of the land itself. The fact is that most of the holdings

are not economic holdings. When a cultivator has got only five or ten acres of unimproved dry crop land, split up into several plots, and situated at a distance from the village and from each other, he has not got an economic holding. It will not provide a living for himself and his family. Much less will it leave him anything over to pay any assessment or any interest on debt, at whatever rate they may be calculated. There is no chance for him to develop or improve his property; and he can only accept his poverty as due to some unknown cause, and grumble indefinitely at the weather or the sowkar or the Government. There is no object in preventing him from alienating his land, little use in trying to put his credit straight, and little advantage to be expected from making him advances or granting him remissions of revenue. As Wingate stated in 1835, the sooner his land passes into the hands of some one who can make proper use of it the better it will be for every one. The man who can make good use of the land can only do so by constituting it into something like an economic holding. What is an economic holding? It is a holding which allows a man a chance of producing sufficient to support himself and his family in reasonable comfort, after paying his necessary expenses. In the Deccan an ideal economic holding would consist of (say) forty or fifty acres of fair land in one block with at least one good irrigation well, and a house situated on the holding. The desirable area would vary greatly in different parts according to circumstances.

A gardener in the Surat District with three acres of good garden land can support a family in comfort, while in a dry part of the Deccan with poor soil thirty acres might not suffice. Between the ideal economic holding and the obviously uneconomic holding there are many gradations; but it would not be difficult to fix a standard for any tract.

Just as there is no use trying to bolster up the uneconomic holder, so there is every object in maintaining the economic holder on his land, in organizing his credit, in making him advances for useful objects, and in giving him technical assistance and advice for the management of his cattle and his crops. This is where the opposing principles of 1835 and 1875 diverge. There is no use applying a mixture of both principles to all lands indiscriminately.

To a great extent, no doubt, the uneconomic holding is the result of the Hindu Law of Inheritance. By this law every male member of the family obtains a share in the ancestral property of the family not only on his father's death but at his own birth; and, like the Prodigal Son in the parable, he may demand a partition of the property at any time. From an economic point of view this is liable to produce serious disabilities; but, after all, these disabilities are not due to any inherent natural cause, but are the handiwork of a law made by man, and can be removed by the same means. It would be out of place here to offer detailed suggestions as to how this may best be done; but the land legislation of other countries

offers useful analogies. Apart from drastic measures of expropriation, which are in some countries recognized as necessary for the well-being of the community, there are other measures which, by adjusting the benefits and disabilities attached to different tenures, tend to bring about the desired rearrangement of the land.

Thus, in Sweden the State has taken the initiative in a rational reconstitution of the land, and enforced the theory that each peasant's land should consist of a single piece; or if that were impossible, that the number of patches should be reduced to the strictest minimum. Further, this reconstitution of lands was made with concentration of each holder's lands in the vicinity of his dwelling. In this way one-third of the peasant landholders of Sweden have had their lands reconstituted, and have quitted the village to go and live on their lands reunited in larger lots. In Austria the economic holding has been recognized by a law, which insists on its hereditary indivisibility, and exempts it from claims for debts except such as are extinguishable in a few years by annual payments at a fixed rate of interest. In Italy comprehensive measures have been taken to induce the people to form economic holdings. Money is advanced and old mortgages are taken over by the State to promote this object. Exemption from stamp and registration duties are granted; and the land tax is remitted for a period of years to those who will build houses on such holdings; while co-operative societies are founded

having for their exclusive object the financing of them. When the object is gained and an economic holding has been created, care is taken to see that the advantages obtained are not lost. The holding so constituted becomes inalienable, unseizable, and indivisible.[1]

The exact legal machinery by which the land of the Deccan can be reconstituted on an economic basis is a matter for detailed consideration. If the disease is properly diagnosed the application of the remedy will follow. The matter of primary importance is that the nature and gravity of the disease shall be recognized, and the remedy applied to the disease itself, and not to what are merely the symptoms.

[1] For details of this and similar legislation see Nos. 1 and 2 of Volume I and No. 2 of Volume II issued by the Bureau of Economic and Social Intelligence, International Institute of Agriculture, Rome.

PART II.

LABOUR.

CHAPTER IV.

THE LABOUR OF THE SMALL PROPRIETOR.

UNDER this heading will be considered both the manual and the intellectual labour applied by the cultivator to his business. It may be thought by some that the latter is almost negligible in the case of small proprietors, who carry on the traditional system of cultivation from generation to generation, with little or no change. But this is not so. Skill and intelligence play their part in the cultivation of a small holding; and their exercise constitutes intellectual labour none the less because they have been developed in the practical performance of farm operations. The skill applied is often considerable, and varies greatly with the individual and with the locality; and the great difference in cultivation to be seen between two neighbouring fields is often due to this cause. Many of the prominent characteristics of industrial labour, upon which economists dilate, have little connexion with the labour on a small farm. The principles of

division of labour, for instance, are hardly applicable to such a case. There are, however, a few general principles that may as well be stated. The efficiency of a man's work depends partly on the man himself and partly on the conditions under which he performs it. The man may be strong, industrious and intelligent; but if he is to do good work he must be prompted by an adequate incentive and sustained by adequate food. Now in the case of the small proprietor of the Deccan many of the necessary conditions are present. The man himself is usually sturdy and industrious, accustomed from boyhood to agricultural operations, and except in years of famine presents a well-fed appearance. Subject to two conditions, he knows that he will reap the full benefit of his labours. If these two conditions were general, all would have the best incentive to work; but unfortunately they are not general. The two conditions are freedom from debt and the certainty of a reasonably good rainfall. In many countries, no doubt, indebtedness and the vagaries of the weather are common sources of difficulty to farmers. In the Deccan they assume pre-eminent importance. The question of indebtedness will be treated under the heading of "Capital"; and it is only necessary to point out here that when a cultivator is so heavily indebted that all the produce of his land, excepting a bare subsistence, must inevitably go to the *savkar* (money-lender), his incentive to strenuous work naturally decreases. He sees little prospect of extracting himself from debt, and he

is fairly confident that the *savkar* will in his own interest see that he does get that bare subsistence. In numerous cases the results of such conditions may be seen in badly cultivated and undeveloped fields.

The rainfall varies greatly in different tracts, and is frequently defective in the East Deccan. It may be said that with the prospect of short rainfall it is particularly necessary for the cultivator to have his land clean and well tilled, and that in most cases he will reap the reward of his labour. This is true, and is often admitted by the man himself. But there are years of short rainfall when the excellence of his cultivation will avail him little; and the knowledge of this has a depressing effect on him, and produces an exaggerated feeling that the outturn of his fields will bear little relation to his efforts. The effect of this feeling may be gauged by contrasting the excellent cultivation of parts of Gujarat and the West Deccan, where famine is almost unknown, with the careless cultivation of the East Deccan, where a season of good and well-distributed rainfall is the exception. It may be traced in the ceaseless industry of the Krishna Valley cultivator, and the comparative slackness of his brother in Sholapur. The one has learnt that he will reap what he sows; the other has learnt by bitter experience that this is not necessarily the case. Anyone who has seen the Eastern Deccan emerging from a famine like that of the years 1899-1900 will appreciate the point of view of the latter, however much he may wish to combat it.

There is hardly any matter on which more widely different opinions are expressed by superficial observers than the question of the Deccan cultivator's industry. One will dilate on his careful industry, another on his lazy indifference. The considerations touched on above may throw some light on this divergence of opinion. There are doubtless some cultivators who are naturally more industrious and intelligent than others, and some countries where the proportion of such men is greater than in others (though probably to a less extent than is generally supposed); but the factor which regulates a man's industry may generally be looked for in the conditions under which he works.

The labour with which the cultivating proprietor is concerned is chiefly his own and that of his family. If he has to hire labour at all, it will generally be for ploughing or harvest; and in such cases he will take part in the operations, and without mnch difficulty keep his men up to the standard of work which he exacts from himself. So far there is little loss of labour. But what happens at other seasons, when no such exacting operations are required? It must be admitted that a great waste of labour takes place. In a country of seasonal rainfall the essential farm operations are of necessity confined to the period of the rains, and it is only in the case of soils retentive of moisture that they can be extended to a period after the rains have ceased. The kharif season may last from June to October, and the rabi season from

September to February; but a man is fortunate both in his land and in the season if he can divide his crop equally between kharif and rabi. He often has to be content to devote his whole land to one; which will leave him with his fields bare for six months in the year, not to mention many slack days between seed-time and harvest. On an English farm, where permanent labour is hired, it is an object of much care to provide work for the farm hands during the winter; and it is during this season that fences are repaired, ditches cleaned out and numerous petty repairs done, while on a large estate there will be work in the woods. But the care of farm animals, which demands more labour in the winter than in the summer, is the main factor which in Europe tends to equalize the demand for labour all the year round. The small proprietor of the Deccan is naturally less anxious to provide labour at all seasons for himself than he would be to find work for paid servants; and in many cases his organization results in leaving him without any obvious work to do during a great part of the year.

It is difficult to estimate the extent of his spare time, which varies greatly in different cases, but the following estimates of the year's work made by cultivators themselves give a fair idea of the position.

A cultivator with a family consisting of himself, his son, his wife and his mother cultivates thirty-four acres, half of which is heavy black soil and half medium black soil. He has one pair of bullocks. The crops grown are as follows:—

4 acres of kharif jowari or bajri.
8 acres cotton }
4 acres wheat and gram } rabi crops.
18 acres rabi jowari }

—

34

He estimates the total of his days of field work at 180 to 190 a year, including ploughing, harrowing, sowing, interculturing, guarding, reaping and preparing for market. Eight days are also included for stacking his *kadbi* (jowari stalk) for use as fodder. *Marketing is not included in the above estimate.*

Another cultivator with a family of the same size as in the preceding case, and with two bullocks, estimates that he takes 164 days to cultivate thirty-two acres. A smaller cultivator who has only got four acres of *rabi* land, and owns no bullocks of his own but hires when he wants them, estimates that his four acres give seventeen days' field work in the year to himself and his son.

From these figures it may be roughly inferred that the members of a family of the size mentioned, which cultivates from thirty to forty acres of dry crop land, are occnpied by their crop for only half the year. Five or six days' work per acre is apparently a fair allowance to make for this kind of cultivation in *typical East Deccan country*.

Apart from the actual field work the cultivator will no doubt have to look after his cattle, repair his implements, and market his produce; but even on his working days he will have some time to spare for odd

jobs; since the day's work in the hot weather is taken at only four hours in the early morning, and thirty days are assigned to watching the crop, which is not very arduous work. In some localities where the dry crop is more carefully cultivated there will be less spare time on hand; but so far as obtaining steady work in the off season is concerned, the majority of cultivators have two courses open to them: they must either go off to a town and look for work, or they must have an irrigation well. The former alternative is perforce adopted by many poorer men who cannot afford to remain idle, and no doubt affords some relief. But where the cultivator is fortunate enough to have land adapted to well irrigation, and is provident enough to take advantage of the fact, the irrigation well relieves him of the necessity of leaving his home, and provides profitable employment during the dry season, not only for men who would otherwise be constrained to go afield to find work, but also for many a cultivator who would otherwise remain idle. This is the second important function of the irrigation wells to which reference has been made. The organization of the cultivator's business requires to be remodelled to some extent if he is to find work on his farm at all seasons, and several suggestions in this direction will be found elsewhere; but it is a question whether in all cases the cultivator wants to find work for all seasons. A great part of his social organization is based on the assumption that he will have time to spare in the hot weather. The marriage

feasts to which packed cart-loads of cultivators may be seen wending their way, the largely attended fairs and pilgrimages, the smaller village *urus* with its wrestling and games, all proclaim that the hot weather is the slack season and the time for social and religious relaxations. There is nothing new in this. The rains have always been the traditional time for work and the hot weather for relaxation; and the only difference is that the army of Mavalis, which in former days would take the field at *Dasra* (October) to loot Gujarat or the Karnatak, now makes its way to Bombay to work in the docks and mills. No one need grudge the cultivator any holiday that he can afford; but in many cases he cannot really afford a holiday, and would frequently be glad to find work to do at home. There is plenty of work for him to do in the way of effecting permanent improvements as will be shown later on. But such work is not always immediately remunerative; and by habit or necessity he is inclined to look to the present rather than to the future. In deciding on his scheme of production it should be an important consideration for the farmer to see that his work is distribnted, as far as possible, throughout the year. When adequate capital is available this is usually practicable; which brings us back to the fundamental proposition of economists, that it is capital which employs labour: a fact equally true in the case of the small proprietor who finds work for himself, and of the captain of industry who finds work for a thousand mill hands.

There are further losses of labour both on the farm and in the market which are partly attributable to the same cause. Simple implements which are easily made and repaired have their advantages, but they are seldom economical of labour. Half a dozen men carrying earth in baskets on their heads might often be replaced by a single man with a wheelbarrow; a man with a hoe can do as much weeding as several men sitting on the ground with a small bent knife; a man with a scythe does more work than a man with a sickle. It may be confidently said that there are many such ways in which labour could be saved, some involving much outlay, others very little. The matter however is one which requires special study and would well repay it; for the introduction of an elaborate implement will certainly cost money, and, unless the matter is thought out very carefully, may easily prove a failure.

In marketing produce, the organization is usually very defective. A common sight on market day is a continuous stream of people pouring into the town, often from distances of fifteen or twenty miles, each carrying a bundle of produce for sale, wood, grass, *bhusa* or what not. The effort to the man is considerable; the value of the produce which he sells is often only a few annas. In the evening he will return home with a bottle of oil, a little salt and spices, or some such trifling purchases; and his day's labour is gone. With organization the whole of the marketing which used up the labour of five or ten thousand

people might have been done by one thousand; and the remainder might have put in a day's work on their land. To effect this we can only look to an increase of the co-operative spirit which in other countries has done so much to make marketing efficient; and this in turn denotes a degree of mutual confidence which is not commonly met with in the Deccan, and which it will be difficult to introduce in connexion with marketing transactions in a country where prices are very indefinite, and the personal element enters so largely into every bargain that is struck.

One other serious leakage of labour must be mentioned, viz., that due to sickness. Malaria is common in many parts, and causes the cultivator a very substantial loss of labour, debilitating some to such an extent as to render them almost permanently unfit for good work. In many localities there is little doubt that this could be prevented without great outlay. In some villages, otherwise quite healthy, a large part of the people are temporarily disabled every year by guinea-worm, and a loss results of much valuable labour which might easily be saved. In the aggregate such losses must be enormous, and put the country where they occur at a great disadvantage as compared with more favoured regions.

CHAPTER V.

HIRED LABOUR AND WAGES.

We may now turn to the questions of hired labour and wages, which are in the present day beginning to attract some attention.

In olden times when there was little pressure of population on the land, when there were few facilities and small desire to move from one place to another, each cultivator must have limited the scope of his cultivation to what he could manage to perform himself with the help of his own family and what little assistance could be procured on the spot. The demand for hired labour which mainly depends on the amount of capital and enterprise competing for it, was presumably small; and wages certainly ruled very low. Prior to British rule, slaves existed in the Deccan. Their number was not very great, and for the most part they seemed to have worked as domestic servants rather than as field labourers. In 1820 there were in the village of Loni Kand (twelve miles from Poona) eighteen slaves and eleven hired servants, out of a total population of 557. Subsequently a system of labour-mortgage was common in

the Deccan, by which a labourer agreed, in return for an advance of money to serve another man for a period of years. If a poor man required Rs. 100 to enable him to get married or to clear himself from debt, he would mortgage his services for a period of about five years and receive his Rs. 100 in advance; while the mortgagee was bound to feed him during the period of service. Many of the Deshmukhs, Deshpandes, Patils and richer landholders engaged labour in this way; and the practice continued in some degree to quite recent times. In the days when land was available for all, however, it would have been only the very poorest who would mortgage their labour in this way, or even engage themselves as yearly servants. In any country the minimum level of wages is limited by the amount which will just suffice to support a man; and in the past this minimum appears to have been the current rate for field labour in the Deccan. Captain Sykes gives an interesting account of the conditions of hired labour in the Deccan immediately after British rule was established. The custom then was to pay for daily labonr in money when grain was dear, and in grain when grain was cheap. Thus in March, 1825, after three years of poor harvests bajri was selling in the Poona District at 11 local sers (27 lb.) per rupee, and jowari at 13 local sers (32 lb.) per rupee. At this time daily wages were paid in money, the rate being 7½ to 8 pice (2 annas) a day. The rains of 1825 were very good, which caused prices to fall

200 to 300 per cent; and by December, 1825, bajri was selling at 21 sers (52 lb.) per rupee, and jowari at 40 sers (98 lb.) per rupee. Daily wages were then paid in grain, the rate being 1 ser ($2\frac{2}{5}$ lb.) of bajri or 2 sers ($4\frac{4}{5}$ lb.) of jowari a day, which represents money values of $\frac{4}{7}$ and $\frac{4}{5}$ of an anna, respectively. From this it will be seen that wages had fallen proportionately to the fall in the price of grain. The day labourer, in fact, got no advantage from the prosperity around him. His wages remained in good and bad years alike at the bare minimum which enabled him to subsist; and the only event that was likely to bring a change in his fortunes was a year of absolute famine, when his labour ceased to have any market value at all, and the continuation of his existence became a speculative matter. For some time later the wages of hired field labour showed little tendency to increase beyond a bare subsistence rate; and up to about 1850 the current rate for daily field work remained at from one to two annas. As late as 1842 field labour was paid for in Khandesh with an amount of grain the money value of which was only one anna. From about 1850 a steady rise occurred in the rate of money wages, due mainly to the demand for labour which occurred in connexion with the construction of railways, roads and other public works, but connected also with the high prices that were current from 1863-9, and the general prosperity that resulted therefrom. The high price of grain, however, during this period prevented the labourer from deriv-

ing much real advantage from the increased money wage.

When prices fell in 1870, the labourer was in a much stronger position than he had previously been. Labour was more mobile; and with the play of economic forces status had, to a large extent, given way to contract as the principle which governed the situation. Wages at any given time were then regulated on a basis of demand and supply, and no longer fell of necessity when the price of grain fell.

The opposite graph shows the variation in nominal wages as denoted by money, and in real wages as denoted by the grain purchasable for the money, from 1873 to the present time. These figures do not, of course, represent actual wages at any definite time or spot. Wages fluctuated from one locality to another and from one season to another; but the figures given represent the average for the year and afford a fair basis for annual comparison. The Ahmadnagar *District has been selected as a typical agricultural* tract where agricultural wages were little subject to the influence of industrial or commercial competition.

A study of this graph makes it clear that the money wage has shown a steady upward tendency. Three distinct levels of wages will be noticed, the period from 1875 to 1881 when wages ruled below 3 annas, the period from 1884 to 1895 when 4 annas was the standard, and the period subsequent to 1902 during which the standard has risen above 4 annas, and tends to approximate to 5 annas. If the level of

real wages, as expressed in grain, be considered, it will be seen that in years of prosperity when grain is cheap (e.g. 1903-4) the labourer enjoys a fair share of the general prosperity. As might be expected under a freer play of economic forces, his money wages no longer *fall* proportionately to a *fall* in the price of grain, but tend to rise in a year when a good harvest increases the demand for field labour; and the combination of high wages and low prices put him in a much better position. It is now only in years of acute famine or of conditions resulting from acute famine (e.g. 1877-9 and 1897-1901) that his real wages fall to the bare minimum of subsistence which formerly represented his normal condition. In most parts of the Deccan the change has been spread over forty or fifty years; but in out-of-the-way and backward tracts the change has been very sudden, and confined practically to the last ten years. In 1900-1 daily wages of field labour in Haliyal Taluka (Kanara) were only 1 to 1¼ annas. By 1906-7 they had risen to 1½ to 2 annas. In 1907-8 they ruled at 2 to 3 annas, and now stand at 3 to 4 annas.

It will be realized that the labourer is now in a much better condition than he was a century ago; but it is necessary to note that the change in the rate of annual wages has not been quite uniform with the change in the rate of daily wages. The former rate denotes the remuneration of steady employment, while the latter rate is more closely connected with the remuneration of casual labour engaged tempor-

arily at times when field labour is most in demand. The latter tends to violent fluctuations; and it is usually to high temporary rates for casual labour that people refer when they expatiate on the difficulties caused to employers by the enhanced rates of wages at the present day.

Writing of a typical agricultural tract in 1828, Pringle states that the normal wages for a field labourer hired by the year were as follows:—

	Per annum.		
1 local ser of bajri a day	Rs. 15	8	0
2 local sers of dal a month	Rs. 0	10	0
1 local ser of salt a month	Rs. 0	5	0
Money wages	Rs. 15	0	0
Clothes	Rs. 5	0	0
Total	Rs. 36	7	0

If we wish to consider the matter from the labourer's point of view, and ascertain what has been the change in his real wages between 1828 and the present day we must convert the money values of 1828, as shown in the above estimate, into the money values of to-day. These will work out as follows:—

	Per annum.		
1 ser of bajri a day	Rs. 30	6	8
2 sers of dal a month	Rs. 2	8	0
1 ser of salt a month	Rs. 0	9	7
Money wages	Rs. 25	0	0
Clothes	Rs. 5	0	0
Total	Rs. 68	8	8

(*N.B.*—It is assumed that two-thirds of the money wage are spent on grain; so Rs. 10 has been added to this item.)

The normal rate of wages for a man engaged by the year nowadays works out as follows:—

SIRUR TALUKA.

Per mensem.		Per annum.
6 *pailis* jowar, 1 ser of salt, 2 sers dal, ¼ ser chillis	Rs. 3	Rs. 36
Money wages	Rs. 2 8 0	Rs. 30
Clothes		Rs. 8 8 0
Holiday food allowance		Re. 1 0 0
	Total	Rs. 75 8 0

A substantial cultivator in the Wai taluka (Satara District) estimates the cost of a yearly servant as follows:—

	Per annum.
Food	Rs. 45
Money wage	Rs. 40
Clothes	Rs. 12
Total	Rs. 97

In some parts of the Southern Maratha country the annual cost of a good field labourer engaged by the year is said to amount to as much as Rs. 120.

It will thus be seen that during the last century the real wages of a field labourer have increased by 20 to 50 per cent, and possibly in some cases by nearly 100 per cent; and practically the whole of this increase has taken place during the last forty years. This is a substantial increase; but when people talk of a rise from 2 annas to 6 annas a day, implying an increase of 200 per cent, it should be

made clear that they refer to the money wages of casual labour, and not to real wages or to permanent labour.

If we turn now to a consideration of the causes which have led to this rise in wages, and attempt to forecast the probabilities of the future, the matter is one of some complexity. It is not proposed here to make a detailed statement of the considerations on which the rate of wages depends. This can be found in any text-book of Political Economy. It will suffice to state generally that the conditions under which the gross profits of agriculture are shared by the classes representing the various factors of production are regulated by the play of economic forces which determine demand and supply. Wages at any time will vary with the demand for and the supply of labour; but in the long run the efficiency of labour, by affecting the demand for it, must tell on wages.

Between 1830 and 1870 a great increase occurred in the population of the Deccan. During the first part of this period there was nothing noteworthy to stimulate any demand for this increased supply. The surplus found a livelihood by bringing new lands under the plough; but the movement indicated the demand of labour for employment rather than the demand of the land for more labour; since the capital necessary to make the demand for labour effective was conspicuously deficient. Later on, however, the demand for labour to construct numerous public works made itself felt; and the opening of large irri-

gation works in the Deccan between 1865 and 1885 brought an additional area of over 100,000 acres under irrigation, and so added to the permanent demand for labour. Meantime a new factor had entered into the case, namely, the demand for labour for industries organized on a capitalistic basis.

The first mill in the Deccan (Khandesh) started work in 1873, before which date practically no such demand had arisen in the Deccan; while in the city of Bombay, which draws largely on the Deccan for its labour supply, the number of operatives employed in factories was less than 10,000. Since then the demand for labour for industrial purposes has steadily increased, as is shown by the following figures of the average daily number of operatives employed in factories (including cotton presses and gins).

	Deccan.	Bombay City.
1890	8,000	60,000
1900	21,000	96,000
1909	34,000	133,000

The steadily advancing commerce of Bombay also makes increasing demands on the labour market.

Meantime, the pace at which the population was increasing received a sharp check from plague and famine. The population of the Deccan as shown in the Census returns has varied as follows:—

1872	5,250,000
1881	5,816,000
1891	6,211,000
1901	5,944,000
1911	6,389,000

It will be seen that during the last twenty years the increase has been very small. The considerations mentioned above indicate fairly clearly the causes of the rise of wages. How far the present rates are likely to be maintained, and how far they are likely to increase, is a matter for speculation; but there is every indication that the demand for labour for industrial purposes will increase. The large irrigation works that are now under construction or projected in the Deccan will require much labour in the making, and will inevitably attract much additional population to the irrigated areas. As enterprise and capital increase, and as credit becomes better organized, the demand for labour must also increase. How far the numbers of the population and the efficiency of labour will keep pace with the increased demand, and how far labour can be economized by more effective methods and machines, are questions the answers to which lie in the future. It is on such considerations that the future rate of wages will depend; but it certainly seems probable that wages will tend to increase still further. From the general point of view there is no cause for dismay in the fact that the country no longer abounds with labourers ready to engage in casual labour for a bare subsistence wage. Quite the contrary. In a country where the wages of the labouring classes are barely sufficient for their support, an increase in real wages is almost certain in a generation to increase the efficiency of labour, and so virtually to increase the supply. In this way

the supply tends to adjust itself to the demand. Then again an increase in efficiency must tend to raise wages still further; since in the long run the wages of any class of people correspond to the marginal productivity of their labour, which to a great extent regulates the demand for it. Thus a rise or fall of real wages tends to have cumulative effects.

It is true that the farmer who employs labour may be considerably embarrassed by a rapid rise in wages, especially when the rise in wages does not immediately produce any rise in efficiency. At the present day it is common to hear complaints not only that wages have risen, but also that labour is less efficient. This complaint probably denotes the fact that many of the best and most enterprising workmen leave their villages and go to Bombay or some other place where they can command higher wages. When conditions adjust themselves, however, the employer will probably find that it is not to his disadvantage that he has to pay his servants a rate of wages which will do more than just support them in abject poverty.

It still has to be seen how far the efficiency of labour will increase with higher wages; and it must be admitted that there is plenty of room for improvement. The secretary of the International Federation of Master Cotton Spinners' and Manufacturers' Associations, in his report submitted to the International Cotton Congress held at Brussels in 1910, states that in the Bombay Cotton Mills it takes five or six men to do the work usually performed by one Lancashire

operative; and that, even with the extra labour employed, the production of an Indian mill is only 65 or 66 per cent of that of an English mill; while the machinery suffers from bad handling, and the extra amount spent in mill stores owing to carelessness is very considerable. It is difficult to institute comparisons in the matter of field labour, but the efficiency of the hired labourer in the Deccan is probably small. An operation which affords facilities for comparison is the picking of cotton. It is stated that in America a woman will on the average pick 100 lb. a day, in Egypt 60 lb. a day, and in India 30 to 40 lb. a day. During the present year there was a great demand at Dharwar for cotton pickers, and 5 annas a day were commonly paid for such labour, which was a very high rate. A woman so paid picked about 30 lb. a day. There were some women, however, who picked by contract, and obtained the rate of 5 annas a local maund (28 lb.). These women by hard and rapid work managed to pick 150 lb. a day, and sometimes up to 170 and 180 lb., earning nearly Rs. 2 a day for their work. If work of this quality represented the normal standard of efficiency, there would be fewer complaints of the scarcity of labour, and the more serious problem of Indian poverty would be more than half solved.

Having regard to prices, wages and the standard of comfort, the unskilled labourer is in a better position in the Deccan than in most countries to put by money, provided that he is prepared to work steadily

and hard. The possibilities of the case are exemplified by the following facts concerning a family of Lonaris who undertook piece-work under a contractor engaged in constructing a dam at Dharwar. The family consisted of four men, three women and two children. They had no money to start with, but obtained an advance of Rs. 200 from the contractor to purchase buffaloes for use in connexion with their work. They had repaid this advance by the end of four months, their work during this time being valued at from Rs. 80 to Rs. 90 a month. After another four months at Dharwar they moved to Bijapur to do similar work for the same contractor, and worked there for him for seven months. During the whole period of fifteen months their monthly earnings averaged Rs. 80 to 90, and their cost of living and feeding their buffaloes Rs. 35 to 40. At the end of the period the family had saved Rs. 600 and owned three buffaloes. Rs. 600 (£40) may not seem to be a very large sum; but to a family of this class it means a good deal; and the fact that a single family could by steady, hard work accumulate this sum in fifteen months, living in fair comfort the while, indicates that it is not want of opportunity but want of inclination to work that keeps many labourers in the Deccan in a state of poverty. At the time when these Lonaris were putting by money at Bijapur the current rate of agricultural wages in that district was about four annas a day; but the day in that case represented about five hours' indifferent work, as against

nine or ten hours done by most piece-workers engaged on the construction of the tank work, and ten or eleven hours done by the family referred to above.

These facts are mentioned to show that there is plenty of margin for an increase in the efficiency of the ordinary worker. Wages of all classes have increased of late years, and are still increasing. Will efficiency increase proportionally? It is upon the answer to this question that the agricultural and industrial progress of the near future will in great measure depend.

PART III.

CAPITAL.

CHAPTER VI.

CAPITAL, CREDIT, AND RATES OF INTEREST IN THE DECCAN DURING THE PAST CENTURY.

CAPITAL is wealth set aside to assist in future production. It can be employed not only by the owner, but by another who may borrow it for the advantages that he can obtain from it. The interest which he pays for it represents the price of the advantages which he hopes to obtain. This price, like the prices of other commodities, is regulated mainly by demand and supply, if we exclude the question of risk. Thus we find that in Europe the general tendency of the last thousand years has been for the rate of interest to fall, denoting that the supply of capital has increased at a greater pace than the demand for it, and indicating also greater security and better organization. For loans on good security the rates of interest in Western countries have roughly fallen as follows:—

	Per cent.
1400 A.D.	10
1500 „	8
1600 „	6½
1700 „	5
Present day	4

In England at the present a landowner can raise a mortgage on his land at about 4 per cent.

Capital has always been very scarce in the Deccan and the bare necessaries for the support of life and for the performance of current field operations have in the past caused a demand for capital which has taken up most of the supply at high rates of interest, and has left little for permanent improvements to the land. Nor was there much desire in former times for the construction of improvements that marked out the possessor as a likely prey for marauding armies, bands of robbers or the exactions of the tax-gatherer. In disturbed times wealth which could not find a safe investment at high rates of interest was generally converted into cash or ornaments, which could be effectively concealed.

Though large sums were seldom lent, the total amount of indebtedness in the Deccan was very considerable at the beginning of the last century. In 1826 Captain Sykes stated that after numerous inquiries, direct and indirect, he could hear of only one *kunbi* (cultivator) who was free from debt, and that the ordinary rate of interest was 24 per cent. Indebtedness to the village *savkar* (money-lender) was partly private and partly public; for, in the time of

Bajirao, it had been the practice to induce the *savkars* to stand security for the payment of the village land revenue and to permit them in return to collect together the State revenues and their private debts. The security for the repayment of these debts was small. The land itself had little or no sale value, and the cultivator's credit was limited to the value of his standing crop and his cattle; but the ordinary dealings between the *savkar* and the *ryot* were based on the result of experience, which taught each his own interest. The *ryot* knew that his constantly recurring necessity could not be relieved unless he maintained his credit by good faith; and the *savkar* knew that he had no outside support to look to, if he tried to exact an exceptionally excessive profit. A common method by which the *savkar* would induce a debtor of the humble class to pay up was to place a servant in *dharna*[1] at his door, or to confine him to his house. The vast amount of indebtedness in the Deccan and the evil consequences which resulted from it soon attracted the attention of the early British administrators. The Regulations of 1827 which provided the first regular procedure

[1] The practice of *dharna* was for a creditor to sit, or to employ an agent (often a Brahman) to sit at the door of a defaulting debtor, insistently demanding payment, abusing the debtor, refusing to eat or drink till the debt was paid, and sometimes placing a stone on his head, or tying his hair to a peg in the debtor's door. The debtor was regarded as the cause of these self-inflicted tortures; and it was considered a great sin to drive the creditor or his agent to extremes by refusing to pay the debt or give guarantees for its payment.

for Civil Justice contained three important provisions which aimed at checking the abuses of moneylending. The cattle and implements necessary for the business of an agriculturist were exempted from seizure for debt; the rate of interest was restricted to 12 per cent per annum; and it was made a penal offence to sit *dharna*. It was hoped that the light assessment imposed by the settlement introduced in 1836 would stimulate production and enable the cultivator to free himself from debt. A period of favourable seasons and rising prices followed, and there is no doubt that production was greatly stimulated, and that considerable prosperity resulted. But indebtedness, far from becoming less prevalent, increased considerably, as inquiries made in 1843 and 1852 proved. It was found that the Usury Law of 1827 had been quite inoperative. This might have been anticipated from the experience of other countries. The device of fixing a limit to the rate of interest that might be charged was no new thing even in this part of the country; for in 1776 Nana Fadnavis, finding that the *savkars* of Bassein were charging interest at the rate of 24 to 30 per cent per annum, ordered that they should not charge more than 10 per cent. There is no record of the result of this order, but it is impossible that it can have been effective.

The proprietary right in his land which the *ryot* had acquired under Wingate's settlement, the light assessment, settled conditions and the steady rise of

prices all tended to give the land an exchange value, and to add to the credit of the cultivator. The latter fell a victim to the insidious ease with which he could raise money on the security of his land, and failed to foresee the inevitable day of settlement. In former times when lands were abandoned it was due to some calamity such as war or famine, and not to the owner's choice; for he was deeply attached to his land. The idea of being ousted from his lands by a money-lender was new to him; and the action of a civil court which would strictly enforce contracts came as a surprise. The passing of the Civil Procedure Code in 1859 swept away the discretion which the courts had possessed under the Regulations of 1827 in enforcing decrees, and left it to the decree-holder to select his form of process. It abolished the exemption of the *ryot's* necessary cattle and implements from seizure for debt, and regulated the process of imprisonment so as to make it a most effective instrument for bringing pressure to bear on the debtor. The passing of the Limitation Act in the same year substituted a period of three years for twelve for bringing a suit for the recovery of money lent, thus putting an end to the old-fashioned long-running accounts, and necessitating a renewal of bonds at exorbitant rates every two or three years.

The period from 1836 to 1866 was exceptionally prosperous, and the people lived not only on their produce but on their capital. The cycle of prosperity culminated in the period of the American war.

There is every reason to believe that during this time the *ryots* cleared off part of their debts, but at the same time they learnt more expensive habits of living. When bad seasons commenced in 1867 and prices fell rapidly in 1870 the burden of debt was severely felt; and the failure to pay the interest brought the debtors into court. The number of suits for debt in the courts of the Poona District doubled between 1867 and 1873, and the applications for execution of decrees increased from 12,000 in 1868 to 28,000 in 1873. Land began to pass rapidly from the possession of the cultivators into the possession of money-lenders. It has been already stated that free trade in land was aimed at under Wingate's settlement. It was expected and desired that land should change hands. But the rapid movement that now manifested itself was merely a symptom of the indebtedness of the landholders, and no evidence of any desire on the part of the richer classes to take up the business of farming or to improve the land.

The result was that hatred toward the money-lenders which had been smouldering for some time became more bitter; and in 1875 expressed itself in the Deccan riots, which consisted of a series of preconcerted attacks and outrages on village *savkars* in the Districts of Poona, Satara, Ahmadnagar and Sholapur. One feature of these outrages was that all account books and bonds which could be found were destroyed by the rioters. It was so far from the tendency of the peasantry to resort to physical

force, that the fact of their having done so was advanced generally by the officers stationed in the disturbed districts as a proof of the reality of their grievances; and a Commission was appointed to report on the riots and the causes which underlay the outbreak.

The Commission came to the conclusion that the Deccan was suffering from the fact that laws and institutions suited only to an advanced and educated community had been imposed on an ignorant body of cultivators who were unable to understand their significance; while the money-lending classes had taken full advantage of the situation to turn to their own uses every facility which the law allowed, and more besides. To remedy this they proposed the introduction of some simpler forms of law and procedure which would save the cultivator from the results of his own ignorance and the astuteness of his creditor.

The result was the passing of the Deccan Agriculturists' Relief Act in 1879, which creates a special machinery for adjusting the disputes between *savkars* and *ryots*. The Act insists on the keeping of full accounts by the *savkar*, and directs the civil court before which such cases come to inquire fully into the history and merits of disputed or doubtful cases from the commencement of the transactions between the parties; to decide whether there has been any element of fraud, mistake or undue influence; and to work out a complete statement of accounts between the parties. When the court has done this it is able

to gauge the equities of the case, and has the power to go behind the contract, and award what it considers fair, reducing the interest to a reasonable rate, and directing that the sum due by the debtor be paid in such instalments and at such dates as may give the debtor a chance of extricating himself from his difficulties. To prevent fraud in connexion with the making of contracts between *savkars* and *ryots*, the Act provides for the appointment of Village Registrars before whom all such contracts must be made ; and to facilitate equitable adjustments of disputes out of court it provides for the creation of Conciliators, who are armed with powers calculated to induce the parties to effect equitable settlements of their disputes. Finally it extends the period of limitation, and provides a simple procedure designed to prevent an uneducated party from being put to an unfair disadvantage.

Twelve years after the passing of the Act a special Commission was appointed to inquire into its working. The evidence taken by the Commission showed that the effect of the Act had been to make the professional money-lender more cautious in advancing loans except on the security of land, and the agriculturist more reluctant to borrow where the security of his land was required. This result had been accompanied by a marked reduction in unnecessary borrowing; while the provisions of the Act as to compound interest and the limitations of the interest which the court could award undoubtedly discouraged long

credits and renewals, and tended to prevent the accumulation of new debt. The general effect was that the position of the cultivator had become much stronger and more independent than it had been. Money dealings with fellow *ryots* had to some extent taken the place of dealings with professional money-lenders, and the custom of making over the crop to the *bania* had lost ground. Credit had not been seriously checked; the price of agricultural land had largely increased; the ill-feeling between *savkars* and *ryots* had in great measure disappeared, and agrarian crimes had ceased.

In spite of the special protection afforded to cultivators by the Deccan Agriculturists' Relief Act, land continued to pass from the possession of *ryots* to *savkars*, though the pace at which it had been passing was checked. However carefully the civil court may exercise its special powers to provide equitable treatment for the debtor many cases occur where his improvidence, the lack of organization and the uneconomic circumstances of his holding make it impossible to put him on his feet again. In 1901 the amendment of the Land Revenue Code was passed to protect the poorer and less provident classes from the loss of their land (*vide* p. 22); but is only of very limited application. It has already been stated that at a rough estimate one-sixth of the land in the Deccan is held by non-agricultural classes; and it may be stated as a rough estimate that half the land is mortgaged. When the facts recorded in the Record

of Rights are analysed, more detailed information on this subject will be available.

During the greater part of the nineteenth century the current rates of interest paid on a mortgage on land or a loan advanced on the security of a valuable standing crop, varied from 15 to 24 per cent. In the present day a holder of good land situated in a favourable part of the Deccan, who has a reputation for honesty, can raise a moderate mortgage on his land at about 9 per cent, while for a short accommodation he would probably have to pay 15 per cent. A landholder whose circumstances are less favourable has to pay interest up to 24 per cent on a mortgage secured on his land. Loans on personal security are made by particular classes of money-lenders, and any rate of interest up to 100 per cent or more may be charged.

The high rate of interest in the case of loans made on good security is due to several causes. Capital is very scarce in the Deccan; and for want of organization the cultivator cannot get in touch with the money market of the towns, and is often unable to realize his credit. Further, a creditor who finds it necessary to foreclose on a mortgage may discover that he has to face not only the worry of a civil suit but also a hostile combination of the cultivators in the village where the land is situated. It is no doubt beneficial that the civil court should have the power to deal equitably with cases for the recovery of debts; and the power to inquire into the whole history of

the transactions between the debtor and creditor with a view to prevent fraud and misunderstanding is particularly valuable; but the feeling of uncertainty among *savkars* as to how the provisions of the Deccan Agriculturists' Relief Act will be administered in any particular court must tend to restrict credit. It may be very satisfactory to a particular debtor, who has possibly made no effort to pay his interest, that the court should fix his rate of interest at 6 per cent (when the current rate for good security is 9 per cent) and should spread the repayment of the debt over a long period with easy instalments; but such action is likely in the long run to react against the interest of the *ryots* as a body, since it tends to restrict agricultural credit. The current rates of interest may appear to many to be very high; but it is necessary to look at the facts from the point of view of the lender as well as that of the borrower; and when consideration is paid to the risks of losing the capital, to the trouble involved in collecting the interest, and to the personal enmity which the money-lender often incurs, it may be doubted whether these rates are excessive. A century ago in parts of the Deccan, the village *bania* was afraid to stop in his own house after dark, but would sleep in a different house every night, so as to elude anyone who might have designs to offer him violence. Even since the advent of more settled conditions the money-lenders of the Deccan have been the objects of open attack by the landholders whose lands they have acquired. Economists may

truly point out that the man who provides capital is a public benefactor, since by the use of capital production is cheapened and the community gains: but the prejudice against money-lending, which led to the strict rules against the taking of interest framed by the early Christian and Mahomedan Churches, is still shared by many. Instances can no doubt be cited against money-lenders of unfair bargains, harsh treatment and fraudulent accounts; but the fact remains that the small village money-lender does not usually acquire much wealth, though he often lives a more laborious and hardly less frugal life than many of his clients. If the risk, labour and unpopularity of his calling be taken into consideration, it is doubtful whether the interest which he charges is higher than the conditions warrant. The determining factors in these conditions are the dearth of capital, the unbusiness-like habits on the part of the borrowers, and the very defective organization of the rural money market. To remedy this state of things the Government has taken action of various kinds which will be dealt with in the next chapter.

CHAPTER VII.

THE ORGANIZATION OF CREDIT.

THE most obvious way in which Government can intervene to supplement the defective capital of the cultivator is to make him direct advances at a moderate rate of interest. The practice of making such advances is of old standing, and was in force to a limited extent under the rule of the Peshwas. The interest charged on such loans was usually 9 per cent; but in cases where it was desired to resettle a tract which had been depopulated by some calamity, money was advanced free of interest. This system of advances was continued by the British Government, and has since been systematized and extended.

The Land Improvement Loans Act of 1883 provides for the advance by Government to cultivators of money for the purpose of effecting permanent improvements in land; and the Agriculturists' Loans Act of 1884 provides for making advances to cultivators for the purchase of seed and cattle, and for the current expenses of cultivation. The magnitude of the business which Government undertakes may be gathered from the following figures for the past ten

years, which refer to the Central Division only. During this period Government has advanced nearly Rs. 150 lakhs (£1,000,000), about two-thirds under the Agriculturists' Loans Act and one-third under the Land Improvement Loans Act. Of this sum Rs. 20 lakhs have been remitted, and Rs. 66 lakhs are still outstanding. The rate of interest charged, which was till recently 5 per cent per annum, has now been raised to 6¼ per cent to cover expenses and bad debts.

It will be realized that, allowing for bad debts and the cost of management, this business is anything but profitable to Government. In the latest edition of "People's Banks" Mr. Wolff severely criticizes these dealings as regards both their nature and their scope, and stigmatizes as ill-advised the action of Government in undertaking them. It may be readily conceded that it would be preferable that the necessities of the cultivators should be provided for on reasonable terms by private banking enterprise; but it is necessary to look at the facts as they are, and not as they might be; and until private enterprise can make available the requisite capital and business capacity to meet the demand, any action of this nature which Government can take is so much to the good. A million pounds may not be a very large sum when spread over ten years in a tract as large as the Deccan; and it is probable that some of the money has been lent unwisely on the one hand and misspent on the other; but it is certain that by means of these ad-

vances cultivators have been materially assisted in times of adversity, and that many useful and reproductive improvements have been effected which could not otherwise have been undertaken.

The difficulty in the way of financing farming in the same way that other industries are financed lies in the nature of the business. The greater part of the farmer's capital is tied up in his land, fixtures and stock; the operations necessary in connexion with a single crop are prolonged; and the turnover is slow. Worst of all, the returns are liable to be irregular and uncertain, since they depend not only on ordinary business considerations but also on the vagaries of the weather. These considerations make the ordinary bank reluctant to lend out money in small sums to farmers at moderate rates of interest, and have peculiar force in a region of scanty and uncertain rainfall like the Deccan.

Where water for perennial irrigation is available the case is different, since the turnover is quicker and the element of uncertainty to a great extent eliminated. Such conditions exist in Egypt, and have facilitated the organization of the cultivators' credit in that country by means of the Agricultural Bank of Egypt. That bank, which is an ordinary business institution working on commercial lines but assisted by the Government, has gone far to solve the problem of financing the Egyptian cultivator. It was suggested that on the perennial canals of the Deccan conditions were sufficiently analogous to those of

Egypt to warrant the expectation of obtaining similar results by similar means. The sugar-cane cultivators on the Nira Canal in the Poona District require a large amount of capital every year to finance their operations, and are greatly handicapped for want of it. They have a very valuable and practically assured crop to offer as security, but even so can obtain only a limited supply of capital, and that often at inconvenient and irregular intervals, and always at a high rate of interest.

In 1908 Government started a special agency to finance in an experimental way some of these cultivators on commercial lines, in order to induce some bank to take up the business. A capital of Rs. 5 lakhs was lent out at 9 per cent, and it was found that the operations of two years resulted in no bad debts, while a net profit of over 6 per cent was made after paying all expenses. It remains to be seen whether any bank will take up the business. The crux of the situation lies in the grant of special facilities for the recovery of outstandings. In conducting their experiments Government had of course the right of summary recovery; and, though they used it in few cases, they had it in reserve to enforce their demands for repayment. The Agricultural Bank of Egypt also has, for practical purposes, this right of summary recovery. It is a question whether any large organized bank would care to encumber itself with a small loan business of this nature with individual cultivators, if it has to go to the civil court in every case of default;

and it is most unlikely that it would do so if its business were subject to the provisions of the Deccan Agriculturists' Relief Act.

The real solution of the difficulty lies in co-operative credit. So much has been written on the subject that it is unnecessary to set forth here the principles involved or the striking success that has been achieved by this means in other countries. In 1904 it was determined to see whether the advantages of co-operative credit could not be obtained for India; and an Act was passed providing for the creation of co-operative credit societies. A Registrar was appointed for the Bombay Presidency, whose duty it is to explain and preach the principles of co-operative credit, and to assist the people of suitable villages to form societies. In this way a modest beginning was made. The Raffeisen type was selected as the most suitable for village societies, with unlimited liability of the members and without shares. By the pooling of credit on the basis of unlimited liability money is raised at easy rates of interest for the society, and lent to the members at slightly higher rates; so as to leave a margin to cover working expenses and to build up a reserve fund.

The money is raised :—

(1) By members' entrance fees.

(2) By deposits of members.

(3) By loans from outsiders in the open market.

(4) By loans from Government.

It was found necessary at the start for Government

to assist to a limited extent with loans. This Government assistance is limited in the case of each society to the loan of a sum not exceeding the amount which the society has raised from its own members, and may not exceed Rs. 2000 in any single case.

Money is lent by the society to its members for

(1) Permanent improvements to land.

(2) Paying off old debts.

(3) Current agricultural expenses.

(4) Unproductive but necessary expenditure.

The security for repayment taken by the society from its members is, in the case of ordinary small loans, personal security backed by two sureties ; but, *in the case of larger loans for the redemption of* debt, a mortgage on the land is taken. Loans are not made on the security of movable property.

Starting in 1904, the number of rural co-operative credit societies in the Bombay Presidency had by March, 1910, amounted to 152 with a membership of nearly 10,000 and a total working capital of over Rs. 4 lakhs. Of this capital Rs. 1,89,000 consists of deposits made by members, Rs. 1,28,000 of advances made by Government, Rs. 46,000 of loans obtained from central and urban societies, and Rs. 14,000 of loans from outsiders. The societies ordinarily borrow at 6 or 7 per cent and lend to their members at $9\frac{3}{8}$ per cent. The total of the reserve funds has now reached Rs. 23,000.

From the above figures it will be gathered that the net effect of these operations is not yet very great.

Rs. 4 lakhs is but a drop in the ocean as compared with the demand for capital throughout the Bombay Presidency. But the point is that the movement has got a start; the public are beginning to take an interest in it; a band of enthusiastic workers have mastered and adopted the principles involved, and are keen to preach and act up to them; and a number of village societies have shown their capacity to conduct their business in an orderly fashion which augurs well for future success.

A statement regarding the position of one of the most successful village societies and the results achieved by it up to date may be of interest.

The Hulkoti Society in the Dharwar District has a membership of 170, and at the end of the sixth year of its existence is working with a capital of Rs. 16,500, of which Rs. 9000 represents deposits by members, Rs. 6000 money borrowed from outsiders, and Rs. 1500 reserve fund. The whole of its capital is lent to members, and the loans at present outstanding include sums amounting to Rs. 9000 advanced for land improvement and Rs. 5500 advanced for the liquidation of old debts to *savkars* bearing a high rate of interest. The society borrows at 6¼ per cent and lends at 9⅜ per cent. There can be no doubt that its operations have been beneficial to the interests of its members, who have not only been enabled to obtain at a low rate of interest the money they required for improving their lands, but have also been enabled to substitute for debts bearing interest at the rate of

18 or 24 per cent debts bearing interest at the rate of only 9⅜ per cent; while the publicity of the transactions has brought home to them that it is both possible and advantageous for each borrower to check his own accounts, and to know how his finances stand. Another gain is that the members of the society are now able to market their produce at suitable times and at profitable rates, instead of selling their crop standing at any rate which their necessities compel them to accept. Nor does the benefit conferred by the society end there; for confidence has been established, unnecessary expenditure on marriages checked to some extent, and the current rate of interest in the village has been reduced by the influence of the society to 12 per cent.

The reserve fund of Rs. 1500 is worth noting. Where does it come from and what does it denote? It arises of course from the fact that the society borrows at 6¼ per cent, lends at 9⅜ per cent, and spends little on management. It represents the care which has been devoted to the management of the society and the honesty and punctuality with which loans have been repaid. It is evidence that the society has the qualities necessary for successful business, and it adds greatly to their credit. This Rs. 1500 may not seem a very large sum; but it represents more than the actual figure, for it indicates *future possibilities.* If a *society working with* a small capital can accumulate in six years a reserve fund of Rs. 1500, there is no reason why it should

not, in a reasonably short time, as its working capital increases, multiply this reserve fund ten and a hundred fold, which will put it on a very different footing and enable it both to borrow and to lend at a lower rate of interest. It is the beginning which is difficult, and the beginning has been achieved.

A point that will have been noticed is that the societies have hitherto raised very little money in the open market. They have not yet been able to get at it. But they are now beginning to show that they are safe and business-like concerns which can be trusted with the management of capital. To put them in touch with the money market a central bank is being founded in Bombay with Rs. 7 lakhs share capital and debentures of Rs. 20 lakhs. This bank is to lend money to the village societies. Before the individual gets the money, it passes through the central bank and the village society, each of which has to make its profit so as to cover working expenses and possible losses. It is therefore essential that the central bank shall obtain its debenture capital at as low a rate of interest as possible, so that the rate at which the society can lend to the individual may not be excessive. To facilitate this Government has agreed to lend the central bank its credit by guaranteeing interest at 4 per cent on the debenture capital up to a limit of Rs. 20 lakhs, provided that the share capital amounts to Rs. 7 lakhs; and to guarantee 4 per cent interest subsequently on an additional Rs. 30 lakhs of debenture capital, provided

In doing so Government takes little risk, since in case of any loss resulting the share capital of the bank will bear the brunt. In this way the central bank will be able to borrow at 4 per cent and to lend to the village societies at 7 per cent; and the latter will lend to their members at $9\frac{3}{8}$ per cent. Both the central bank and the society make a profit, and the cultivator obtains capital at half the rate of interest which he would have to pay but for this organization. Each party will perform the part of the business for which it is most fitted. The village society regulates membership, restricts loans to suitable amounts for approved purposes, requires adequate security and exacts punctual repayments. The central bank is saved the trouble and risk of small dealings with individual cultivators, and is concerned only to raise the requisite capital and to advance lump sums to village societies, after satisfying itself that the latter are in a sound financial condition. Government merely lends its credit, and is saved the trouble of all business management.

With the opening of the central bank, the movement will enter on a new phase. The merely educative phase is over, and the period is commencing when the societies will be handling a relatively large capital raised in the open market. This is real co-operative credit, and makes a good step forward. When the principle is once established, and the village societies have shown themselves competent to conduct their extended business in an orderly and

honest fashion, the operations can be steadily expanded till every honest cultivator is enabled to realize his credit to the full at reasonable rates of interest, and is relieved from the crushing and unnecessary burden which he now has to endure for want of effective organization.

The members of each society manage and are responsible for the business of their own society. Government merely assists the society by appointing a Registrar to aid and advise it, by making itself responsible for the audit of its accounts, by granting special facilities for the remittance of money, by exempting the society from stamp duty and registration fees, by advancing them money to a limited extent, and by lending its credit to the central bank. Further it cannot well go, even at the beginning; for the essence of the movement is that the people shall work out their own salvation. As the movement acquires force, it will be possible and desirable for Government to withdraw more and more from an active share in it. And as the cultivators become habituated to business methods through the operation of these societies, they will in time acquire the orderly habits and sound principles which are inseparable from a well-conducted business; and which will in turn do much to promote honesty, self-reliance, confidence, good-will amongst neighbours, and all the qualities for which the word "co-operation" stands.

CHAPTER VIII.

FIXED CAPITAL. LAND AND PERMANENT IMPROVEMENTS.

So far capital has been considered in the form of money. It is now necessary to consider the various uses to which the farmer's capital is put. They may be tabulated as given on the next page.

Many farmers would probably consider this classification to be unnecessarily comprehensive, and to include forms of capital to which they pay little or no attention. If a man's business is to be put on a sound basis, however, and the maximum profit extracted from the land, every form of capital enumerated above must be provided for in some way or other; and it is only by a proper understanding of each form of capital that correct accounts can be kept, and the true source of profits and losses determined. With regard to the land and the labour supply, a farmer can often do little to alter the conditions in which he finds himself, and can only adapt himself to them as best he may. In the management of his capital, however, he has more scope for the exercise of discretion; and it is to a great extent on

- CAPITAL.
  - Fixed capital.
    - d.
    - Permanent additions and improvements to the land, e.g., buildings, wells and embankments.
  - Working capital.
    - Stock.
      - Live stock.
      - Dead stock.
    - Circulating capital, e.g., manure, produce on hand, ready money for paying wages.
    - Reserve fund, e.g., sinking fund, insurance, repairs.

his business management that his financial success will depend.

To consider the various forms of capital in order—

Land has been already treated separately. When the farmer owns the land which he cultivates, it, of course, forms part of his capital. In the Deccan it unfortunately forms in many cases almost the whole of the cultivator's capital. Land should offer good security for borrowing at moderate interest the capital necessary to work it; and about half the land is mortgaged to a greater or less extent; but as has been already shown, the cultivator is often unable to realize his credit, and fails to obtain capital except at very high rates of interest. Even this would not matter so much if the money borrowed were all devoted to productive purposes, or if a reasonable sinking fund were established by the borrower to enable him to pay off the loan. But this is seldom the case; and the burden tends to become cumulative. It is unnecessary to say more about land as a form of capital except to observe that the more land a man has, the more of other forms of capital also should he possess, and that the farmer whose whole capital is sunk in land and permanent improvements is at a disadvantage as compared with a man owning less fixed and more working capital.

Permanent Improvements.—Few people, probably, who are familiar with the landscape of rural England, realize what changes in the scene have been effected by the expenditure of labour and capital in

the past. To note the difference it is not necessary to go back to remote ages when the valleys in many parts were covered with forests and swamp, and cultivation was confined to the higher ground. Progress has no doubt been continuous for centuries past; but it is the expenditure during the last two centuries on enclosures, field drainage, pastures, windbreaks and farm buildings, that has enabled the English farmer to survive the depression caused by the ruinous fall in the prices of agricultural produce, due to the foreign competition resulting from improved communications. The outcome has not been particularly profitable to the landlords who incurred the expenditure; since in many localities the value of land is now no greater than the cost of the buildings and other permanent improvements attached to it; and the owner has often been compelled to sell his land for anything that it would fetch to some one with an income derived from sources other than agricultural, who could afford to keep in repair the improvements that his predecessor had effected. But the matter is more than a question of money; and the landowners of England have this to their credit, that they have borne the burden which every other country in Europe shifted on to the shoulders of the whole community by means of protective duties, and so have justified the policy of the seventeenth century which put so much of the common land in England into their hands.

To appreciate the significance of the improvements

that have been effected the inquirer need not go farther than the West of Ireland to see what unimproved land means: a desolate stretch of wind-swept bog-land without a fence or a tree, with no signs of life but a few huts, each with its potato patch guarded by a small boy who drives off stray animals. With capital laid out in reclamation this land might support the ship-loads of emigrants who yearly make their way to America, and more besides. In default of such capital the tract becomes a "Congested District" by virtue of the scanty population which it retains. Conditions in India are very different to those in England, and there has not been much disposition on the part of the proprietors in the Deccan to improve and develop the resources of the land. In the western portion some careful and laborious terracing has been done on the hill-sides by the smaller owners. Here and there a favoured tract will be supplied with irrigation wells, and some farm buildings may be seen in the fields; but over the greater portion the landscape owes nothing to the hand of man—the fields lie unwatered, unfenced and unembanked, without shelter for man or beast.

In a dry country like the Deccan, the prime agricultural necessity is water, and in many localities where rainfall is scanty the annual produce of the land can be increased tenfold by perennial irrigation. The larger irrigation works have been constructed by Government; and in the Central Division alone 110,000 acres are annually watered from Government

canals. These irrigation works have in the past forty years involved a capital expenditure of Rs. 260 lakhs. Work is in progress on additional irrigation schemes estimated to cost Rs. 211 lakhs; plans and estimates have been prepared for a large scheme costing over Rs. 300 lakhs and calculated to irrigate about 300,000 acres in the driest part of the Deccan; while a preliminary survey has been made for irrigation works calculated to water 2,500,000 acres in the Deccan and Southern Maratha country. Private enterprise is responsible for some 150,000 wells irrigating about 348,000 acres; for small tanks irrigating about 4000 acres; and for the construction of dams and channels from streams which water 65,000 acres. These latter are led from a permanent or temporary dam, often with much ingenuity, along the contours of the bank till they can command a cultivated field.

From the above figures it will be seen that irrigation has not been entirely neglected. The fact remains, however, that out of 13,000,000[1] acres cultivated in the Central Division only 527,000 acres can at present be irrigated; that is to say, only 4 per cent of the whole. The possibilities of large reservoirs are limited, and, such as they are, they are being realized by degrees. Few small streams which run for any length of time after the end of the rains are neglected by the cultivators; but there is a large field for profitable investment of capital in digging wells in localities where the subsoil water is reasonably near the surface. Another source of irrigation

[1] This is the approximate figure of the net cropped area.

which is neglected consists in the perennial supply contained in many reaches of the larger rivers. The great difference in the water levels of the wet and dry seasons presents an obstacle to the convenient utilization of such water, and conditions are seldom favourable for lifting it in the traditional way with the *mōt*, or leather water-bag; but by the use of engines and pumps this difficulty can be overcome. Experiments are now being made with various kinds of engines and pumps to ascertain the cost of lifting water by these means; and there can be little doubt that under suitable conditions capital can be most profitably utilized in this way. A note of warning must, however, be sounded in connexion with investments of this description. It is no use for a man to sink capital on such improvements unless he has sufficient working capital to run the plant. The same argument applies in a less degree to the construction of wells; for it is not an uncommon thing to find a cultivator who has exhausted his capital, and possibly his credit, in digging a well, and then finds that he has no means to work it properly or keep it in repair.

A useful form of small investment consists in the construction of field embankments, known as *tāls*, which prevent erosion and scour during heavy rain, and retain in the soil the rain-water that falls. When combined with field levelling and tree planting, and skilfully executed, they are of much value. Such works may be large or small; and there is

hardly a cultivator who could not make some small improvement of this nature every year at little or no cost beyond his own labour.

It has already been remarked that the cultivator very seldom lives on his holding. The farm buildings form part of the cultivator's house in the village, and are for the most part of a very primitive kind. It is not to be expected that a man will lavish conveniences on his cattle which he does not obtain for himself; but it is certain that the absence of comfort and sanitation that characterizes most cattle-sheds must have a prejudicial effect on the stock. The surplus produce of the fields is seldom sufficient to demand elaborate store-houses, but such as it is it often suffers considerably, the grain from weevils and other insects, the fodder from lack of protection against the rain; and for want of suitable buildings the cultivator often loses much of the profits of his labour.

In view of the high standard of cultivation in many parts the most remarkable feature is perhaps the complete absence of any permanent fences. A live fence cannot be produced at once, but in the course of a few years it can be produced at no cost beyond the labour of part of the cultivator's spare time. The advantages to be derived from fences are not immediate or perhaps very obvious, which presumably accounts for the fact that none are made; but it cannot be doubted that very real and substantial advantages would be derived from their existence. Looking at the matter as it affects the crops, it is

common to see growing crops seriously damaged by the inroads of stray animals; and in outlying fields the difficulty of guarding *rabi* or garden crops against such damage often deters the landholder from cultivating them at all. The cattle, too, on their side, often suffer seriously from feeding on young crops; and roaming as they do over the unsheltered grazing grounds, the healthy with the diseased, live under circumstances which are anything but conducive to health and condition. Much of the labour now spent on herding cattle and guarding crops might be saved by the existence of well-kept fences, which would do the work far more effectively, and entail but little outlay either for construction or maintenance. As regards plant growth, shelter from strong winds is of much value, and the injurious effect of such winds on growing crops, and on cotton in particular, is a matter of common remark amongst cultivators. Yet in the Deccan practically nothing has been done to grow windbreaks; and it is in the case of only the most valuable garden crops that temporary shelters from the wind are erected. In the part of Upper Gujarat known as the Charotar, which is perhaps the most productive part of the Bombay Presidency, all the fields have high hedges; and it is probable that much of the productiveness of this region is due to the protection from wind which they afford.

Writers are accustomed to contrast the output per acre of one country with that of another. Before such a comparison can be effective, consideration

must be given to the capital which has been sunk in permanent improvements. In England such improvements have been roughly estimated as representing an average value of £12 (Rs. 180) per acre. Allowing 8 per cent for interest, depreciation, repairs and insurance, it will be seen that the net annual charge against each acre of land on account of permanent improvements will be about £1 (Rs. 15). As regards the Deccan if we take Rs. 400 as representing the average cost of a well (taking masonry and non-masonry wells together), the

Capital sunk on wells amounts to . .	Rs. 6,00,00,000
Add capital cost of Government irrigation works	„ 2,60,00,000
Add capital cost of private irrigation channels from streams and small dams (rough estimate)	„ 40,00,000
Total	Rs. 9,00,00,000

The capital cost of irrigation works thus comes to about Rs. 900 lakhs. Dividing this by 500,000 acres irrigated, we find that for irrigated land the capital sunk in permanent improvements works out at about Rs. 180 (£12) per acre, or the same sum per acre as is estimated to be sunk in permanent improvements in England. The above calculation is of necessity a very rough one, and takes no consideration of outlay in levelling land, which is frequently necessary where irrigation facilities exist. It will suffice, however, to show that in comparing English with Deccan outturns per acre, it is the irrigated land which, from

the financial point of view, offers the best basis for comparison; while as regards the unirrigated land which forms 96 per cent of the whole cultivated area, it must be remembered that in the matter of permanent improvements there is little for which the present has to thank the past; for the amount of capital per acre sunk on permanent improvements is almost negligible. If the gross outturn per acre obtained on the dry lands of the Deccan compares badly with that obtained in England, this fact must not be overlooked.

CHAPTER IX.

LIVE STOCK.

THE live stock of the Deccan consists of the following:—

Horses and Ponies	71,000
Sheep	1,300,000
Goats	1,200,000
Buffaloes	500,000
Cattle	2,900,000

Before considering each class separately it will be desirable to give some idea of the general conditions under which stock is bred and reared in the Deccan. On the crest of the *ghauts* and in the strip of country adjoining, the rainfall is very heavy during the monsoon. This results in an abundance of grass, but it is coarse and of a poor feeding value; while in this tract the climate during the three months of excessive rain is prejudicial to the health of stock. The East Deccan is a dry country and grazing is very scanty. Almost all the good land is cultivated, and though large areas are available for grazing, they consist almost exclusively of stony uplands where the soil is of the thinnest. On such lands herbage is

scanty and is confined to the rainy months—July to October. In an ordinary year the cattle have to work hard to find a living in these hills after December, and from March to July the so-called grazing grounds are, for the most part, as bare as a high road. In the intermediate tract between the *ghaut* region and the East Deccan there is a fair rainfall, and in some localities the facilities for grazing are much better. Here and there considerable areas of occupied land lie uncultivated, and the natural herbage provides some grazing; but no attempt is made to improve or enclose them, and it is only by courtesy that they can be called pastures. Stock, during the greater part of the year, are expected to pick up a living as best they can on the hills, in the river beds, or in weedy fields from which the crop has been harvested.

Ponies are bred principally in the Eastern Deccan. In the old days Deccan ponies had a considerable reputation and gave the mobility for which the Mahratta armies were famous a century and a half ago. Even at the present day the Deccan ponies are extremely hardy and enduring, and do good work in *tongas;* but their virtues end there. They are, for the most part, under-fed and under-sized; and their appearance usually indicates that they have been worked too young. The Army Remount Department has demonstrated at Ahmadnagar that with care and expenditure very good horses can be bred in the Deccan; and private breeders are not slow to avail themselves of the services of the stallions maintained by Govern-

ment in the Deccan for their use. Here and there a well-to-do landholder will make a hobby of high-class horse-breeding, and occasionally breed a really good foal, and obtain a good price for him; but it is hardly business, and is not usually regarded as such. If any one requires a good horse or pony he knows that his best chance is to go down to Bombay and buy an imported Arab or Waler.

Goats are found in every village. The males are killed for food, and the females provide milk for children. No trouble is taken with their breeding; but they are very hardy and shift for themselves, costing practically nothing to their owners for food. Under these circumstances they may be considered as a source of profit to the latter; but in so far as the community is concerned it may be doubted whether they do not cause more loss than gain, for they roam over the unfenced country browsing on any crop that is not strictly guarded and making tree growth impossible in places where it would otherwise take place.

Sheep are grazed in large herds of 100 to 300, and are generally accompanied by a few goats. Many shepherds lead a migratory life, frequenting the dry uplands of the Eastern Deccan during the wet months, and afterwards bringing their flocks down to the cultivated land, where the farmers welcome them after the crop is removed, for the sake of the manure which they provide. The sheep are kept constantly on the move, and thrive on the scanty herbage, though they

do not get fat on it. No system of fattening is practised; but wethers of one year old afford lean mutton which seems to satisfy the meat-eating classes who know no better. It is probable, however, that judicious fattening would pay round the larger meat-eating centres. The wool is wretchedly poor; but the manure brings in some profit, particularly in a locality where sugar-cane and other valuable garden crops are grown.

The peculiar conditions under which the sheep industry is carried on may be gathered from the following figures supplied by a sheep-owner in the east of Poona District.

ANNUAL ESTIMATE FOR A FLOCK OF 100 EWES.

Profits.

Fee paid to owner for folding 100 sheep by night on garden land on account of manurial value, at the rate of five annas a night for 100 sheep, for nine months of the fine weather . .	Rs. 84
During the remaining three months they are folded in a yard and the manure for that period may be taken as worth . . .	Rs. 16
Total value of manure	Rs. 100
Two shearings of wool a year worth 4 annas a sheep, or Rs. 25 per 100	Rs. 25
100 ewes will give 100 lambs a year, 50 male and 50 female allowing 20 per cent for wastage, this leaves 40 one-year-old wethers for the butcher at Rs. 3—4—0 each . .	Rs. 130
40 cast ewes for the butcher at Rs. 1—8 each .	Rs. 60
Total .	Rs. 190

Profit (abstract).

Manure	Rs. 100
Wool	Rs. 25
Sale to butcher	Rs. 190
Total	Rs. 315

Cost.

Feeding costs practically nothing but 2 annas a *head grazing fee to Government*	Rs. 13
Miscellaneous	Rs. 8
Wages of one man and one boy at Rs. 12 a month for the two	Rs. 144
Total	Rs. 165

Net profit—Rs. 315—Rs. 165 = Rs. 150.

So that if the capital value of each ewe be taken at Rs. 3, the sheep-owner makes 50 per cent on his capital. If the size of the flock be 300 instead of 100, the cost of labour for herding is proportionately cheaper and the net profit is larger. On the other hand in the wetter localities of the West Deccan the loss from disease is greater and the profits are correspondingly less.

Cattle form by far the most important and valuable part of the live stock of the Deccan. Their number amounts to 3,400,000, of which about one-sixth are buffaloes. Of the buffaloes the large majority are milch buffaloes. Except near a few large towns the milk supply is in no sense an organized industry. In the case of these towns the milk supply is mainly derived from buffaloes; but the Deccani buffalo is not a good milk breed, nor does the country provide

the quantity or quality of fodder requisite for effective milk production. The price of good milk in towns is usually very high, and much of the milk supplied is heavily adulterated. Steps might be taken to improve the supply of milk, and no doubt there is money to be made in the business; but the conditions of the country make it a difficult and precarious one. In the case of a few of the better breeds of cattle, when the object is to breed good bullocks, the calf is allowed to run with the cow, and the latter is not milked; but in most cases the calf is allowed to suck only one-half or one-quarter of the milk, according as it is a bull or a cow calf.

The importance of cattle is far smaller from the point of view of milk supply than from the point of view of draught. As regards draught the horses of this tract are of little importance. Buffaloes are used in small numbers for heavy draught, for ploughing in rice fields, and in some localities as the first pair in a large team of plough animals. But it is the oxen who do almost all the ploughing and other field operations in the Deccan on which agriculture depends. The plough bullocks amount to 1,315,000 and the plough buffaloes to 55,000. A large proportion of the plough cattle, including most of the best, are imported into the Deccan from Central India, and command high prices. Eighty years ago a good working bullock of the small local breed could be purchased for Rs. 20; even ten or fifteen years ago it could be purchased for Rs. 30; but in the last ten

years the price has doubled, and is steadily rising. A fairly good Deccani bullock now costs about Rs. 60, a half-bred Khillari Rs. 100 or more; while a good Khillari or Krishna Valley bullock may fetch anything up to Rs. 300 or even Rs. 400; and Rs. 1000 is sometimes asked as a fancy price.

The cause of the rise in price is not far to seek. Ninety years ago cultivation in the Deccan generally, and in the East Deccan in particular, was scanty; and there were large areas of good land which lay waste and grew some kind of herbage. The demand for cattle was then relatively small; and the waste lands provided grazing grounds which enabled cultivators to rear cattle sufficient to meet the demand. With the advent of more settled conditions, however, a large increase of cultivation occurred, and reduced the area of grazing grounds. This process steadily continued till towards the end of the last century, until at the present time practically all the good land is occupied and most of it is cultivated. During this time, as the demand for bullocks increased, large numbers were brought for sale from the extensive grazing grounds of Central India, and the result of this change in economic conditions did not at once become obvious. It was not till the famines of 1897 and 1899-1900 that the pinch was severely felt. After recovering from the famine of 1876 the number of cattle in the Deccan remained fairly steady at 3,700,000 during a series of good years in the eighties, and during the early nineties rose to 4,000,000. Then

came the famines of 1896-7 and 1899-1900, during each of which nearly a million cattle were lost; so that in spite of purchases from outside the number fell from over four million in 1895 to less than two and a half million in 1901, a fall of $\frac{2}{5}$ in the aggregate, and of over half in the case of certain districts. The plough cattle, which numbered 1,631,000 at their high-water mark in 1895, had lost $\frac{1}{3}$ of their number by 1901, and have only made up half of this loss ten years later; their number now standing at 1,371,000. It might have been expected that cattle would pour into the Deccan from Central India to make up the deficiency; and no doubt considerable numbers did come in. But Central India also had suffered severely from famine, and though prices rose the supply fell off.

The acreage of cultivated land in the Deccan amounts to 13,000,000 acres, which gives almost exactly one pair of bullocks to 20 acres. Now it may be roughly taken that in the Deccan a pair of good bullocks can cultivate 30 acres of light soil, 20 acres of medium soil, and 10 acres of heavy black soil. Assuming that the cultivated area is equally divided into these three classes, the present number of plough cattle works out almost exactly at the required number, viz., a pair for each 20 acres of land. There are, however, two considerations which greatly discount this apparent sufficiency of plough cattle. In the first place a large number of them are engaged for a great part of the year in working the *mōts* on

the 150,000 irrigation wells, and many more are employed for most of the fair season in carting on the roads; while the 500,000 acres under irrigation demand a higher degree of cultivation necessitating more bullocks. In the second place the assumption that the plough cattle are all efficient is far from being a fact. It may be said, without fear of exaggeration, that 20 per cent of the so-called plough cattle are practically useless and that another 10 per cent are very ineffective. It is not possible to make more than a rough estimate of the number of cattle that is necessary; but the following may give some idea of actual requirements:—

	Bullocks.
To cultivate 13,500,000 acres	1,350,000
Allowance for working wells	100,000
Allowance of extra bullocks for irrigated lands	50,000
Total good bullocks necessary	1,500,000

Assuming that 25 per cent of the total number of bullocks are useless it will need a total of 2,000,000 to give 1,500,000 effective work oxen; and this may be taken as a general indication of the number necessary. The allowance made for extra bullocks for irrigated land is very moderate; and of bullocks working on wells only one-quarter of the total requisite number has been added as devoted exclusively to this work, while no extra allowance is made on the ground that many of the cattle are used for a large part of the year in carting. It will be seen that according to this estimate the number of

work-cattle has never been adequate, and is now 31 per cent short. But the estimate made may be taken as a moderate one; and as irrigation increases the number of work-cattle necessary will rise. The deficiency can be remedied either by increasing the numbers or by improving the quality of the animals. In either case the question of fodder is at the root of the matter. Even during a series of good years the number was unable to rise higher than 1,650,000 bullocks, good, bad and indifferent, which was itself insufficient; and a few bad years reduced the number to 1,100,000, which is totally inadequate. To provide against such losses the storage of fodder in good years to tide the cattle over the bad years is essential. Much might be done in many parts to make better use of the existing fodder supply; but that in itself would not suffice. The people must adapt themselves to the new conditions and realize the imperative necessity for growing fodder crops. It may be said that there is hardly any lesson that they have to learn more important than the growing, efficient storage, and economical use of fodder crops.

In the case of improving the quality of the cattle, too, the question is primarily one of fodder. In many localities the supply of stored fodder is barely sufficient for the working animals; and the cows and young stock are turned out all the year to shift for themselves. The nature of the grazing grounds has already been described; but the hardy stock get along fairly well from August to February. From March on-

wards their state is very miserable. They rapidly lose condition, and are driven by hunger to eat almost any refuse, and even to gnaw the trees. By July they are reduced to skeletons; and when the rain commences and the young grass begins to grow, they gorge themselves on it, and suffer severely from scouring and tympanitis. Under such conditions good bullocks cannot be reared; and there is not much use talking of careful breeding. Where the fodder supply is better some care is taken in the matter of mating. In such cases the object is usually to provide a good bull of the Khillari breed to run with the village herd. The idea is to grade up the small Deccani breed, and to rear stock of the size and strength necessary for ploughing the stiff black soils.

It is generally believed that the Deccani breed has greatly deteriorated in the past fifty years. Be that as it may, it is certain that cattle larger and stronger than the present ones are required for effective ploughing; and with rising prices and a falling supply from outside the only way that the cultivators can get them is to breed them themselves. In England more than half the farm land, exclusive of mountain, consists of permanent pasture, and of the arable a large part is devoted to fodder crops. To one accustomed to this state of affairs it seems natural to suppose that the Deccan cultivator would recognize the direction in which lies his only remedy. But from time immemorial he has been accustomed to trust to the

waste lands for the main support of his stock; and he still sighs for the extensive grazing lands of the past, which have assuredly gone never to return.

Much emphasis has been laid on the question of fodder as the prime factor in the case. It will be realized, however, that there are other considerations of importance. Three great obstacles to progress consist of the constant recurrence of contagious cattle disease, the neglect of the cultivator to castrate the young bulls that are unsuitable for breeding, and the impossibility of eliminating the unfit owing to the religious objections of Hindus to kill cattle. Losses from contagious disease are trifling as compared with losses from starvation; but from 1000 to 10,000 deaths from the former cause are reported every year, and the real numbers are probably far greater. It is not long since such diseases were rife in England. In 1865-6 the losses in England from rinderpest were estimated at 234,000 animals, worth from five to eight million pounds sterling. The stringent sanitary measures which were then enforced by law have completely stamped out the worst of these diseases. The nature of these measures is well known, and it will suffice to say that in the case of rinderpest the owner of diseased cattle is bound to give information, and the local authorities are bound to take prompt action. All affected animals, and all animals which have been in the same stable, shed or herd, or in contact with affected animals, *must* be slaughtered; and other animals about which there is any suspicion may be

slaughtered if the Board of Agriculture think fit. No *animals may move out of an infected* area or *from* one part to another of an infected area. Fairs and markets are prohibited. Carcasses are properly disposed of; and care is taken to prevent the importation of disease from abroad.

Apart from the question of slaughtering cattle, such regulations would in India be regarded as intolerable, and it would be impossible to enforce them. But in England, where they have been strictly enforced, the value to the farmer of the results that have been obtained is incalculable. In India the lines of work indicated are preventive inoculation and the *segregation of diseased animals*.

The neglect of the Deccani farmer to castrate all young bulls not required for breeding makes careful mating impossible in a country where all the cattle run together. The excellence of the Kankreji breed in Upper Gujarat and Kathiawar is mainly due to the fact that the breeders of those parts practice early castration. In the Deccan they do not castrate bulls till they are four years old, and the number of unsuitable young bulls which run with the herd cannot fail to have a bad effect on the breed.

A matter of more importance to the present inquiry is the case of the 25 per cent of useless cattle of all kinds, amounting in round numbers to 900,000 beasts. These consist of worn-out old bullocks, barren cows, and beasts which from extremely stunted size, malformation, broken limbs or bad feet are useless for

work purposes. In a meat-eating country all such animals would be promptly fattened off and sent to the butcher, and so become a source of profit rather than loss. But in India the demand for beef is very limited; so most of them continue to eke out a wretched existence.

In this connexion it may be worth while to consider the statement which is frequently made, that the slaughter of cattle is in a great measure responsible for the deficiency of work-cattle. The argument seems to be that a certain number of cattle exist, and that if you kill some the number left must of necessity be less. It ignores the nature of the cattle slaughtered and the fact that the number of existing cattle is not a fixed quantity, but can, within broad limits, be increased at will. Now with regard to the slaughter of cattle in the Deccan the facts are these. About 50,000 cattle are annually slaughtered in the Deccan or drawn from the Deccan for slaughter in Bombay. These consist almost exclusively of worn-out old bullocks, lame and malformed beasts, and barren cows. Not 5 per cent of those slaughtered are or could ever become of any use either for draught or for breeding purposes. To ascertain this all that is necessary is a visit to the slaughter-houses; but an examination of prices will suffice to show that this must be so. The carcase of an average Deccani bullock of the kind and condition brought to the slaughter-house, skinned and dressed, weighs about 150 lb., which at the current rate of 12 lb. per Re.

is worth Rs. 12—8—0. The hide is worth Rs. 6 and the offal and fat (say) Re. 1—8—0. Total Rs. 20. But between the cultivator and the meat seller are several middlemen who have to make their profit and recoup the cost of bringing the animal to market. The cultivator will be lucky if he gets Rs. 15 for the bullock. Now it has already been stated that the price of a good Deccani bullock is Rs. 50 to 60; and it may be confidently stated that there is not a bullock of any use for draught that would not command at least Rs. 30. Is a cultivator likely to sell to a butcher for Rs. 15 a bullock which will command Rs. 30 or more in the market? He certainly will not do so; and if he sells a bullock for Rs. 15 or less, the reason is that it is useless for draught purposes and its only value is for slaughter. The same argument applies to a bullock of larger breed, with a dead weight of 300 lb. All that is necessary is to double the figures, and it will in the same way be realized that a cultivator will not sell to a butcher for Rs. 30 a bullock for which he could get Rs. 60 for draught purposes. So far as bullocks are concerned, a consideration of the price of beef and the price of draught animals will show that a draught animal is worth far more alive than dead. Under such circumstances it is only the unfit and the worn-out that are brought for slaughter. Occasionally a calf may be seen at the slaughter-house which looks as though it would with proper attention turn into a fair bullock, and one wonders why the cultivator has sold it. It is pretty certain,

however, that the original owner knew more about the calf than the casual observer does, and he also knew what facilities he had for rearing the calf to maturity. If he found it more profitable to sell it for Rs. 10 when it was young and in fair condition, he probably knew what he was about. Barren cows provide the best beef, and are often young and in good condition when brought for slaughter. They are of course useless for any other purpose.

The number of cows wholly or partially barren to be seen round the country-side is very remarkable. Any one accustomed to the circumstances of economic cattle farming expects to see every cow earning her living. She should be in milk, or in calf, or fattening. But in the Deccan numbers of cows are to be seen doing nothing to pay their way. Many are completely barren, and many others calve only once in two or three years, and give but little milk, and that for a short time only. This is partly a matter of individual idiosyncrasy; and partly due to lack of green fodder without which cows will not come in season. In some cases a little work would probably put the cows right; but this is contrary to Hindu custom. In France and Belgium small holders habitually work the cows. They frequently cannot afford to keep bullocks, and in such cases the cows have to do all the cultivation. Far from being bad for the cows, light work is beneficial to their health, even when they are in milk. They must, of course, not be given very heavy work or be put to a severe

strain; but when carefully used by the owner they do useful work without any harm to themselves, and in this way they are of the greatest assistance to small holders.

It will be realized from the above that it is not the 50,000 Deccani cattle which are slaughtered annually that cause loss to the cultivator, but the 800,000 useless beasts which are not slaughtered. If there was a greater demand for beef, and the cultivator could dispose of them all for slaughter at Rs. 10 apiece, the Deccan would be Rs. 80 lakhs better off, and there would be more grass for the effective cattle to eat.

In stating the economic facts with regard to the slaughter of animals it must not be supposed that it is intended to recommend to Hindus that they should countenance the slaughter of cattle. It would obviously be improper and foolish to advise them to do what is repugnant to their religion and to their feelings. It is essential, however, to realize the facts. In India the provision and maintenance of cattle are a source of difficulty and loss to the cultivator, while in other countries the cattle are a source of profit. Leaving on one side England, where cattle are not used for draught, and looking at France, over a large part of which cattle do most of the farm work, it is found to pay to slaughter bullocks, not only when they are getting old, but long before they are worn out. Bullocks are commonly worked from four to seven years old, and then fattened off. Fine bullocks of the large white Charolais breed may be seen

going off to the butcher at the age of seven. It is simply a question of what pays best; and it is by such methods that cattle, which used to be regarded as a "necessary evil" to the French farmer, are now converted into a source of profit. The French farmer sells off his seven-year-old bullock to the butcher, knowing that he has more young ones coming on. He takes three years' work out of him and converts him into cash before he begins to deteriorate.

It is not likely that the demand for beef in India will increase to a point at which the flesh of all useless animals will find a market; and it is therefore most improbable that the price of beef will rise to a point at which it will pay to slaughter animals which are of value for draught or for breeding. The above facts are, however, mentioned to show that, even if such a thing were to occur, it would not necessarily be prejudicial to agriculture. Far from it; it would solve the greatest difficulty of the cultivator, and enable him to do what the French farmer has done, viz. to make the meat consumer pay for the ploughing of his lands.

CHAPTER X.

DEAD STOCK, CIRCULATING CAPITAL AND RESERVE CAPITAL.

Dead Stock.

The implements commonly used by the Deccan cultivator are as follows:—

The *Nangar* or plough, of various sizes	Cost Rs. 2 to 10
The *Pábhar* or seed drill . . .	" Rs. 5
The *Kulav* or harrow	" Rs. 3—8—0
The *Kolpá* or bullock hoe . . .	" Rs. 2
The *Maing* or clod crusher . . .	" Rs. 4
The cart	" Rs. 50

Hand Implements.

The *Kodali*, used as hoe, pick or spade .	6 annas
The *Khurpe*, a small sickle used for weeding, etc.	4 "
The *Vila* or sickle	8 "

In cases where there is an irrigation well the *mōt* or leather water-bag will be required. With pulleys, ropes, etc., its cost may be taken at Rs. 40.

Implements of the kind mentioned above have been in use in the Deccan from time immemorial. They are ingenious, and up to a certain point effective

They are made mainly of wood, and contain as little iron as possible. They have the merit of being cheap and easily repaired; but they cannot be said to be efficient according to the modern standard.

In India, as elsewhere, the plough is the most important agricultural implement. As regards ploughing, the custom varies greatly in different parts of the Deccan. In some parts it is customary to plough deep every year; and in all parts the land must be well ploughed for irrigated crops. In the case of black soil which is infested with deep-rooted weeds the only method of cleaning the land is to plough deep. This presents many difficulties to the cultivator. It is therefore most important that the large plough should be an efficient implement. But any one who takes the trouble to observe the heavy Deccan plough at work must admit that it is a clumsy implement, and that its work is very defective. Five or six yoke of oxen with several drivers, besides the ploughman, may be seen straining at the task, and making very slow progress. It would be out of place here to enter into the merits or defects of various implements; but it may be said generally that a change is bound to come over Indian implements in the near future, and is already beginning. This change will be accomplished here, as it has been in other countries, by the introduction of a new factor in the case, namely cheap iron. The change in England dates from the beginning of the eighteenth century, when the improved process of iron and steel

production revolutionized agricultural implements, and proved the greatest boon to English agriculture. The change took place later in other countries; and in parts of France the wooden plough, practically the same as the old Roman plough, might have been seen at work as recently as fifty years ago. France is now well to the front in the matter of agricultural machinery, and is very well provided with workshops where implements are made and repaired.

In every European country implements of all kinds have been designed to suit the requirements of various soils and various crops; and the process of specialization and evolution is being pushed on with skill and perseverance. It is cheap iron which has made this possible. In the Deccan there is little movement so far; but something is being done. Pickaxes, which were introduced by the Engineering Departments, are now becoming quite popular, and hundreds of iron turn-wrest ploughs are purchased annually. A machine which has advanced many stages during the last century is the sugar-cane mill. The old stone mills containing a hole in which the cane was pounded may still be seen lying about in the fields. They were replaeed about 100 years ago by a two-roller wooden mill, which was a great advance. These in turn have been supplanted in most parts during the past fifteen years by the three-roller iron mill; while during the last few years several power-driven crushers with six or more rollers have been erected, and more are likely to be

set up in the near future. So long as it is necessary to import iron implements from other countries, it is unlikely that the detailed attention necessary to adapt them to local requirements will be forthcoming; but already in the Deccan several iron foundries have been started for the manufacture of agricultural implements. Iron will very shortly be produced in India; and the day is not far distant when India will be in a position to make agricultural implements designed for its own special purposes, and to provide effective workshops for their repair. When that day arrives the cultivators will not be slow to recognize where their advantage lies.

The chief advantage of efficient implements is, of course, that they save time and cheapen production. It does not end there, however; for there is many a man who would be ready to take up agriculture if he could work with efficient machines, but who prefers to stand out of it altogether rather than use the primitive methods in common use. This is a matter of some importance in the present day when the educated classes are beginning to think of farming as a profession, and doubtless accounts for the interest that such men often display in the question of advanced agricultural machinery. Meantime, it must be recognized that, in the matter of dead stock, the Deccan farmer is very badly equipped. Looking at stock as a whole, live and dead, we may take a substantial cultivator with 40 acres of land and allow him the following stock:—

Two pairs of bullocks at Rs. 75 each bullock	.	Rs. 300
Four cows at Rs. 30 each	. . . . . .	Rs. 120
Implements	. . . .	Rs. 80
Ready cash	. . . .	Rs. 100
	Total	Rs. 600

His capital figures out at Rs. 15 (£1) per acre, whereas the tenant farmer in England is expected to have for the same purposes £10 (Rs. 150) per acre.

There is probably nothing that would show more rapid and striking results in the direction of increased outturns per acre than the use of a steam plough. It has already been remarked that many of the best lands are infested with deep-rooted grasses; and it has also been shown that the number of plough cattle necessary to plough these lands is strikingly deficient. For such conditions really deep ploughing is necessary, and the steam plough offers special facilities for this. When the system of rearing and feeding cattle has been modified to suit the new conditions, it may be possible for the Deccan to support an adequate number of cattle for plough purposes; but this is a development which cannot be expected for some time to come. Meantime, the only hope of getting the grass-bound lands broken up for effective cultivation lies in the introduction of steam ploughs. Conditions are favourable for the use of such machines since much of the country in question is flat and open, and for seven months in the year there is practically no rainfall. It has been estimated that a good double engine steam-ploughing plant, with tackle complete

could be placed in the Deccan for about Rs. 40,000. Allowing Rs. 10,000 as working capital, the annual cost of the operations would work out somewhat as follows :—

Interest on Rs. 50,000 at 7 per cent per annum	Rs. 3500
Depreciation of value of plant (Rs. 38,000) at 6 per cent per annum	Rs. 2280
Repairs at 7½ per cent per annum, assuming that the plant works for six months only	Rs. 1425
Driver, fireman and steersman	Rs. 1925
Fuel	Rs. 3640
Oil and waste	Rs. 260
Cartage of fuel and water	Rs. 1755
Office and establishment	Rs. 1000
Total	Rs. 15,785

Assuming that only 130 working days a year were obtained, and that, ploughing at a depth of 18 inches, it was possible to plough only 8 acres a day, it would be possible to break up 1040 acres of land in the year. To balance the cost shown above, it would therefore be necessary to charge for the work at the rate of Rs. 15—3—0 per acre. Seeing that landholders pay from Rs. 40 to Rs. 50 for the labour of hand digging an acre of grass-bound land to a depth of 15 inches, such a ploughing plant ought to show a good profit. All that would be necessary for the success of the venture would be adequate mechanical skill and business management. It may be hoped that such an enterprise will be undertaken in the near future. Its

progress would certainly be watched with much interest.

Circulating Capital.

Produce in Hand.

Under this heading may be considered grain, fodder, and manure.

Grain.—Under ordinary conditions in India it is striking to note how very little produce the farmer has in hand after harvest is over. His general shortness of capital causes him in most cases to cut down this form of capital; in other words, to convert into money as soon as possible any produce that he can collect from his fields. He can seldom afford to stack his harvest and thresh, winnow, and market it at his convenience. If he were able to do so, he might get on with his ploughing in the cold weather before the ground is too dry and hard, and dispose of his produce in the hot weather when field operations are brought to a standstill. But he generally cannot afford to stand out of his money for so long, and he puts his produce on the market at a time when every one else is doing so, and prices are at their lowest. In many cases he has obtained an advance against the crop, and in such a case his only concern at harvest time is to adjust the balance with the *savkar* (money-lender) in whose hands he has placed himself. If the cultivator could afford to hold up his produce longer he could doubtless obtain better prices and suit his convenience better. The question of holding

up produce for a good market must not be confused with the question of keeping a permanent reserve of grain. It is common to hear old people deplore that nowadays cultivators do not maintain a permanent reserve of grain as they used to do. Formerly in out-of-the-way tracts grain was stored to a great extent in the villages; but now few people keep more than enough to last them till the next harvest. It is however doubtful whether this change is a matter for regret. Grain was formerly stored permanently by cultivators because there was no ready market for it. Nowadays they know that they can always find a market for selling and for buying grain, and they keep no permanent reserve. It is argued that the money so obtained is spent at once, and that the man is worse off for not having his reserve of grain. It is certainly a fact that the standard of comfort has risen, but the standard is not so high that we need deplore this. Under modern conditions there is no difficulty in marketing produce, no fear of the grain becoming exhausted in any locality, and far less fear of lack of employment. The poorer classes have adapted themselves to the new conditions.

Fodder.—The extreme shortness of fodder has already been remarked upon. In many tracts hardly any store is carried over from one year to another, and little even into the hot weather. A striking fact noticed in the recent famines was that some of the tracts where fodder is usually most abundant, such as Khandesh, suffered most severely, and lost more

cattle than the localities which ordinarily produce far less fodder. In many localities fodder is so scarce even in an ordinary year that it is very difficult for the people to store it against a famine; but in other tracts where it is usually plentiful its value is overlooked, and it is largely wasted. Unlike grain, fodder cannot be readily imported from a distance to supply any local deficiency. Its bulk prevents this; and when transported to a distance, the cost of carriage makes its price prohibitive. There is probably a good opening in the Deccan for compressed fodder which is easily portable and can be kept for a long time, since kadbi (jowari stalk), the common fodder of the country, may often be found selling at one place at 500 lb. to the rupee and at another place not far distant at 50 lb. to the rupee. This, however, is a matter for experiment and enterprise. The ordinary cultivator must maintain his own fodder reserve if he would avoid disaster.

Manure.—The cultivator of dry crops in the dry tract sets little value on manure. He stores carelessly what farm-yard manure comes readily to hand, but would never buy it. In tracts of better rainfall, the farmer values it more; but it cannot be said to be an important item of his capital. With the garden cultivator it is otherwise. He stores manure carefully and buys it largely. Sugar-cane is manured at the rate of sixty cart-loads per acre. A cart-load works out at about half a ton and costs about Rs. 2. Where garden cultivation has increased, complaints are often heard

of the high price of farm-yard manure; but it is still the cheapest form of manure, and its nitrogen works out at Rs. 2—10—0 per unit, as against Rs. 8—8—0 per unit of nitrogen in sulphate of ammonia, Rs. 9—4—0 in safflower cake and Rs. 12—2—0 in castor cake, on the "ton per cent" basis. Castor cake is used in some tracts as a top-dressing for sugar-cane, and is a considerable item in the cane-grower's bill. To the majority of cultivators, however, manure is not a formidable item of expenditure, nor a matter of much care. Artificial manures are almost unknown. There are three valuable sources of manure of which the Deccan cultivator may avail himself at little or no cost, viz.: human excreta, cattle urine, and green manuring with *san* hemp. Of these the two former are now almost entirely neglected, and the last is used only by the most intelligent cultivators and in the most advanced tracts.

Reserve Capital.

Provision for Unforeseen Expenditure, Sinking Fund, and Insurance.

There is not much to say about these forms of capital except to point out their necessity. In every business accidents may happen and adverse periods will occur. In agriculture this is particularly the case. In the Eastern Deccan, owing to the vagaries of the rainfall, a year of scarcity may be looked for once in five years, and a serious famine every ten or twenty years. Many theories are advanced as to the

reasons why failure of rain should cause such acute distress. Without attempting to investigate the reasons why the cultivator has not got more capital at his disposal, it may be stated that he has little or no reserve capital, and that this circumstance is a prime factor in famine distress. The landholder with unencumbered land may raise a mortgage to tide over the period of depression; but the 50 per cent of landholders whose land is already mortgaged, and also the landless labourers, cannot do so. Field work comes to an end and wages cease. Under such circumstances the farm labourers in England could not afford to remain idle for a month; and it need not be a matter for surprise that the poorer classes in India cannot afford to remain idle for a year or more. In England, however, the capital of the landlord and the capital of the tenant farmer feel the first brunt of any depression which occurs, and tide the labourers over the crisis, with hardship, perhaps, but without the deplorable accompaniments of an Indian famine.

Sinking Fund.—Field improvements will go out of order, and implements will wear out. The farmer who does not provide for these contingencies by laying aside a certain sum every year as a sinking fund is bound to find himself in difficulties sooner or later. In considering the question of purchasing expensive machinery the questions of depreciation, repairs, and interest are very important. Suppose a man buys a small power cane-crushing plant costing Rs. 4000, he will probably have to allow at least 15 per cent a year

to cover these items; that is to say, he must set aside Rs. 600 a year for the purpose. If he can run his plant for only two months in the year, this will amount to a charge of Rs. 10 for every working day. If, however, he can run his plant for eight months in the year, the charge on this account per working day will come to only Rs. 2½. It is on such questions that the financial success of machinery of this kind largely depends. The same argument of course holds good in the case of an iron plough costing Rs. 40, as in the case of more expensive machinery. And, if the establishment of a sinking fund is necessary to replace working capital laid out in machinery and implements, it is even more imperative in the case of a man who raises a mortgage on his land for unproductive expenditure. If he fails to establish a sinking fund to pay off the mortgage, he is almost certain to involve himself in serious difficulties. A sinking fund need not, of course, consist of a stock of cash put away from year to year. It may be invested in any operation that may be counted on to bring in the money when it is wanted. If the money is wanted in four years, a calf bought for (say) Rs. 20 and reared to be a bullock worth Rs. 100 or more may represent the sinking fund. If the money is wanted in thirty years, a man may plant out a few acres of teak or babhul, and realize a good sum for the timber or fuel when the time comes, without more cost to himself than some of his spare time in the interval. The essential thing is that the

necessity for a sinking fund should be realized, and the money ear-marked for the purpose.

Insurance.—In western countries a man will insure his stacks against fire, and may ensure his live stock against loss by disease. In India he cannot well do either. In some of the richest parts of the Deccan, deliberate stack-burning is very common, and, apart from the actual value of the stacks burnt, does much to discourage cultivators from keeping a permanent reserve of fodder. A man who puts up a kadbi stack in his field has given a hostage to his enemies. It is not so much that the Maratha Kunbi is essentially a quarrelsome or mischievous man, as that the small holdings, the infinite subdivisions of the land, and the absence of fences afford endless opportunities for disputes. The exact position of a boundary, the trespass of cattle in a standing crop, a question of right of way or water may easily give rise to a dispute which will last for years and involve many stacks in flames. In such cases criminal prosecutions do not serve much to smooth down matters; and nothing but strong and organized local opinion can suppress the practice of arson which is far too common in many parts of the Deccan.

Even in Europe the insurance of ordinary farm stock is hardly a practical proposition. A particularly valuable animal may be insured; but the rates offered by insurance companies are usually prohibitive in the case of ordinary farm stock. Good results have been obtained in some countries by mutual insurance on

co-operative principles. Such a system, however, is at present not applicable to India. All that the Indian cultivator can do to secure himself against accidents and damage is to have his house in his fields so that he may be on the spot to protect his property, to have a reserve of fodder to make his cattle secure against famine, to have an enclosed pasture in which he may segregate them when contagious diseases occur, and to have an irrigation well to serve as an insurance against unemployment in the dry season.

PART IV.

THE BUSINESS SIDE OF FARMING.

CHAPTER XI.

MARKETS AND PRICES.

In a primitive state of society the cultivator aims at growing all that is necessary for his own maintenance. He cannot count on satisfying his needs by any other means. As communications are developed and trade is organized, it becomes possible for him to devote himself to the raising of those crops for which his circumstances give him some special advantage, to dispose of his produce, and to purchase what he needs. In other words, a market is opened to him in which he can not only sell his produce, but sell it at a price which will allow him to live more comfortably by producing particular creps than by trying to produce a bit of everything that he requires. Thus the question of markets and the question of prices are identical.

Even in this more developed state the small cultivator will in most cases continue to provide many of his own requirements; and it will generally pay him

best to do so. Some indeed have argued that it is preferable that he should continue to supply all his own needs so far as he can, and have as few trade dealings as possible; since he has little aptitude for business, and places himself in the hands of the enemy every time that he buys and every time that be sells. There is, no doubt, something in this argument. In a country like the Deccan it will usually pay the cultivator to produce the bajri or jowari that he requires for his own consumption, and to supply himself with such milk and vegetables as he needs; and when he does so he certainly avoids paying anything to the middleman. But if he finds it more profitable to grow sugar-cane or cotton, or even to grow for the market a grain like wheat which commands a high price, and to buy another grain like bajri which is cheaper and which he prefers to eat, he need not be worried if the middleman makes a moderate profit out of him. It is simply a question of which system pays him best; and this is a matter that each man must work out for himself.

The change from one system to another has been very marked during the past century. When the Peshwas were in power, there was little export trade from the Deccan, and such trade as existed was hampered by the levy of transit dues. But the Peshwa's Court at Poona, and his troops quartered in various parts of the Deccan, offered a good market for the produce of favourably situated villages. The normal revenues levied throughout India in the time of Mad-

havrao amounted to over Rs. 3 crores a year; and with tributes, fees, fines, contributions and customary offerings, the sum collected annually amounted to over Rs. 7 crores. Much of this wealth found its way into the Deccan and added considerably to the purchasing power of those who handled it. With the advent of British rule these revenues no longer flowed into the Deccan; the Court ceased to exist, and the troops were disbanded. Simultaneously with these changes a large extension of cultivation took place. The result was that the supply of agricultural produce increased and the local demand fell off, while there were no facilities for export. This produced the disastrous fall in the price of agricultural produce already mentioned, which occurred in 1825. With large stocks of grain on hand, and no means of export, land again went out of cultivation, and distress prevailed. In 1833-4 prices went up rapidly owing to a famine, and for the next thirty years were subject to violent local fluctuations as the result of a good or a bad season; but on the whole they kept very low. Throughout the latter half of the nineteenth century communications were steadily developed, and in this way new markets were opened to the Deccan cultivators. A steady export of cotton and wheat commenced, and later received a great stimulus during the period of the American War. During the Crimean War it was discovered that India as well as Russia could supply oil-seeds; and a considerable European demand for Indian oil-seeds arose.

The extent to which the European market has been opened to the Indian farmer during the last sixty years is indicated by the following table, which shows for the Bombay port in lakhs of rupees the annual export by sea of the most important agricultural products:—

	Average for the Ten Years ending—						
	1850	1860	1870	1880	1890	1900	Present Day
Raw cotton	51	267	1716	1043	1126	859	1288
Oil-seeds	2	35	25	80	417	612	677
Wheat	·18	3	1	24	367	231	90

The temporary falling off in the exports of raw cotton after 1890 was due to local consumption by Indian mills; and in the case of wheat the falling off is due to the competition of Karachi Port, which now obtains the export trade of wheat from Northern India.

The chart overleaf gives as accurately as can be ascertained the price of jowari and bajri for ninety years at Sholapur, a large grain market in the East Deccan. It shows what a steadying effect the railway has had on prices. The years 1821, 1825, 1854, 1862 and 1892 were years of scarcity, and the years 1833, 1877, 1897 and 1900 were years of famine. The high prices which ruled from 1864 to 1867 were due to the American War. Up to 1860 there were

enormous fluctuations in prices, depending on the nature of the season in the neighbourhood. In 1860 the railway to Sholapur was opened, and surplus grain found a ready export. Fluctuations then became far less marked; and the average rate which had previously stood at about 100 lb. to the rupee now found a level of about 50 lb. to the rupee. During the period from 1860 to about 1885 trade was not fully organized, but was being steadily developed. From 1885 onwards trade was established on a more settled basis, and prices ruled steadier and higher. During the last few years the Deccan seems to be entering on a new period marked by a still higher level of prices.

In former days grain was stored by cultivators in every village during a good year, and each tract had to grow enough to feed itself. How greatly conditions have changed can be seen from the following tables showing the imports and exports of important articles of trade in the Bombay Presidency. The Bombay Presidency no longer feeds itself. In a good year there is a small net export of food grains, in which wheat figures prominently: but in a famine year this export is converted into a large net import valued at about Rs. 10 crores. Even in a fair year the Presidency shows a net import of food grains valued at from Rs. 1 to 3 crores, mostly in the shape of rice. Export takes place mainly in cotton and oil-seeds, which have supplanted food grains to a considerable extent as field crops.

TABLE SHOWING NET IMPORTS OF IMPORTANT ARTICLES OF TRADE INTO THE BOMBAY PRESIDENCY PROPER, EXCLUDING BOMBAY[1] PORT, COMPARING THE FIGURES FOR A YEAR OF GOOD RAINFALL AND A YEAR OF BAD RAINFALL.

	1903-4 *Good Year.*	1900-1 *Bad Year.*
1. Sugar	Rs. 75 lakhs	Rs. 79 lakhs
2. Spices	Rs. 6 ,,	Rs. 12 ,,
3. Vegetable oils	Rs. 7 ,,	Rs. 15 ,,
4. Kerosine oil	Rs. 20 ,,	Rs. 25 ,,
5. Raw silk	Rs. 28 ,,	Rs. 17 ,,
6. Metals (manufactured and otherwise) excluding gold and silver	Rs. 100 ,,	Rs. 2 ,,

TABLE SHOWING NET EXPORTS OF IMPORTANT ARTICLES OF TRADE FROM THE BOMBAY PRESIDENCY PROPER, EXCLUDING BOMBAY PORT, COMPARING THE FIGURES FOR A YEAR OF GOOD RAINFALL AND A YEAR OF BAD RAINFALL.

	1903-4 Good Year.	1900-1. Bad Year.
1. Raw cotton (lint)	Rs. 656 lakhs	Rs. 885 lakhs
2. Oil-seeds	Rs. 165 ,,	Rs. 42 ,,
3. Fresh fruit and vegetables	Rs. 36 ,,	Rs. 20 ,,
4. Tobacco	Rs. 36 ,,	Rs. 26 ,,
5. Grain and pulse	Rs. 19 ,,	– *Rs.* 988 ,, [2]
6. Ghee	Rs. 19 ,,	– *Rs.* 52 ,, [2]
7. Gul (raw sugar)	Rs. 5 ,,	– *Rs.* 41 ,, [2]
8. Wood	Rs. 16 ,,	Rs. 15 ,,
9. Hides and skins	Rs. 18 ,,	Rs. 64 ,,
10. Leather	Rs. 44 ,,	Rs. 38 ,,
11. Salt	Rs. 105 ,,	Rs. 116 ,,
12. Manufactured cotton	Rs. 124 ,,	Rs. 14 ,,

[1] Bombay being the trade port for other parts of India besides the Bombay Presidency, it is necessary, to regard it for purposes of trade

[2] In these cases the export becomes a large import in a bad year.

As regards imports it will be noticed that the figures for sugar, spices and oil are higher in a bad year than in a good one. This is due, of course, to the deficiency of the local crop. The large falling off under metals is partly due to diminished purchasing power, but in great measure also to the export of large quantities of old brass and copper vessels, sold off by the poorer classes of people under the stress of famine, which reduces the figure for net import.

As regards the Deccan proper the following table shows the net exports of important articles in a good year.

TRADE MOVEMENTS IN THE DECCAN.

NET EXPORTS FROM THE DECCAN.[1]

Raw cotton (lint)	2,900,000 maunds[2]
Oil-seeds	2,618,000 ,,
Grain and pulse	770,000 ,,
Fruits and vegetables . . .	250,000 ,,
Gul (raw sugar)	161,000 ,,

Imports consist mainly of manufactured metals and cotton goods. The only article of import which bears a close relation to the agricultural products of the Deccan is refined sugar, of which the import is 508,000 maunds.

statistics as outside the Bombay Presidency. This, however, makes no practical difference to the figures. Most of the produce that goes to Bombay is shipped from there to Europe; but it does not concern the farmer, who finds in Bombay a market for his produce whether it stays there or goes to Europe.

[1] In this connexion the term Deccan denotes the Central Division with the Bijapur District.

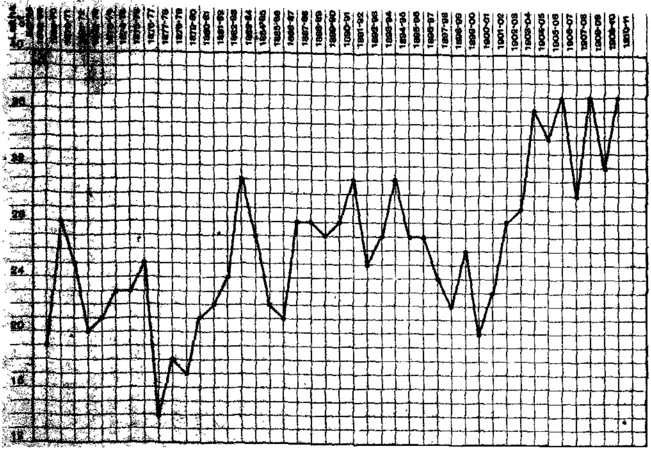
[2] One maund = 82⅔ lb.

The most striking fact brought out by the above tables is the large export of cotton and oil-seeds. This fact to a large extent dominates the situation; but it is not the only cause which has contributed to steady prices and to raise their level. The trade between the different parts of the Deccan is very considerable. Thus the West Deccan receives from the East Deccan large supplies of grain and pulse, and sends in return *gul,* fruit and vegetables. Even in the purely local market trade is more organized and concentrated in the hands of professional dealers than it formerly was; and nowadays comparatively little grain changes hands except through the medium of the *bania.*

The change in markets and prices and the causes that have effected the change have now been considered. It remains to enquire how far the change is beneficial to the farming interest and to the community in general. A rise in the price of agricultural products is *prima facie* advantageous to the farmers who produce and disadvantageous to the classes which buy the products. There can be no doubt that the classes with fixed incomes have suffered considerably from the rise in the price of food stuffs; and this has naturally led to a great outcry on their part. It has further been contended that the cultivators get no advantage out of the high prices of their produce; and suggestions have been made that the export of grain should be checked and the cultivation of crops other than food grains

discouraged by the imposition of export duties. The idea is apparently to revert to the condition of affairs which existed before export took place, when grain was extensively stored in the villages and prices ruled low. There is no doubt that this would in the first instance benefit people with fixed incomes who buy food stuffs and have none to sell. But how about the *cultivator?* It is sometimes contended that the small cultivator consumes what he produces and that it makes no difference to him how prices stand, since he has little surplus to sell. It may be admitted that a good part of the cultivator's surplus goes to pay the interest on his debts; but allowing for the grain which he consumes himself, and allowing for what he may buy, it is obvious that the net result of his operations is a large sale by him of surplus field produce. It is this surplus that feeds the non-agricultural classes and goes to make up the enormous sum total of exports of agricultural produce. Anything that reduces the price of the cultivator's produce must hit him hard, whether it takes the form of reducing the amount of money that he can put by, or of lessening his ability to pay off his debts. He has deliberately substituted cotton and oil-seeds for food grains because he found that it paid him to do so. Formerly his experience was that when he had a good harvest he could only dispose of his grain at ruinously low prices, while if prices were high owing to a short harvest he had no surplus to sell. Now he finds that not only do cotton and

CHART SHOWING THE EXPANSION OF COTTON CULTIVATION IN THE BOMBAY PRESIDENCY DURING THE PAST 40 YEARS.



oil-seeds pay him well with ordinary seasons and ordinary prices, but the fact that he is dealing with the world's market renders him immune from the depressing characteristics of a purely local market which have already been referred to, and makes it possible for him always to hope for and sometimes to realize the happy combination of a good harvest and high prices. The cotton cultivators have had this good fortune during the last few years, and there is no doubt that their savings have been considerable. That they realize where their profits lie is shown by the opposite chart which marks the expansion of cotton cultivation in the Bombay Presidency.

If the cotton cultivator were shut off from his market by means of an export duty, it would have a disastrous effect on his finances and inflict loss which would not be confined to him alone. In the present day the interdependence of one class of cultivation on another and of one industry on another is such that you cannot injure one without injuring another. During the last fourteen years the price of *gul* in Poona has risen considerably, owing to the demand for it that has sprung up on the part of the cotton cultivators of Khandesh and Berar. If you reduce the spending power of the cotton cultivators you hit as well the Poona sugar-cane cultivator and the Bombay cotton manufacturer who supply them with their wares.

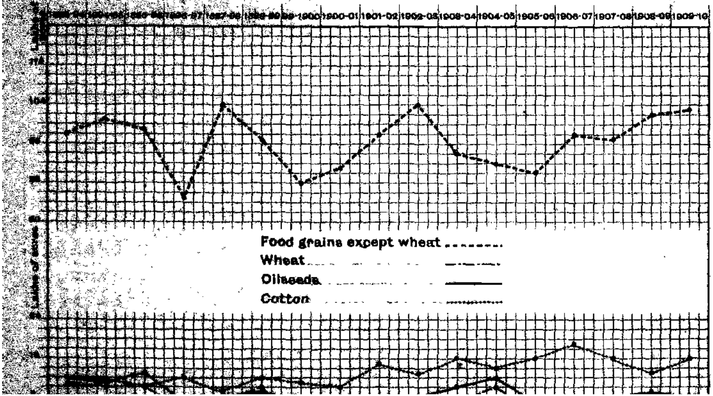
There is no special virtue in having grain stored in large quantities on the spot where it may be required, seeing that if local harvests are bad Rs. 10 crores

worth of grain can be rushed into the Presidency in a single year; and there is no reason why the Bombay Presidency should not annually import grain worth Rs. 2 crores or so since it exports cotton and oil-seeds worth Rs. 6 or 7 crores, which gives it an income sufficient to pay for the extra food stuffs required and also to pay for the imports of cotton and metal manufactures. There is little fear of the cultivation of grain crops falling off unduly, since the rising prices of grain and fodder serve to check any such tendency.

The opposite chart will show that in the Deccan the area of grain crops has not lost ground in recent years, and that the expansion of cotton growing is now taking place mainly at the expense of wheat and oil-seeds.

There can be no doubt that it is to the farmer's interest that the price of field produce should rule high. To reduce prices by artificial means would be to rob the cultivator in the interest of the consumer. It would of necessity check agricultural enterprise and development, and drive capital out of the business. The European market which improved communications by land and sea have opened to the Indian farmer is one of his greatest economic assets, since it enables him to sell his raw produce at a high price and to buy his manufactures cheaply. India can no longer stand apart in backward isolation. Prices here must approximate to those of other countries. The trade movements and prices of wheat

Chart Comparing the Acreage in the *Deccan Sown to* Export Crops and to the Food Grains of Local Consumption during recent Years.



given in the following table show how far this tendency has gone; and if the price of jowari and bajri still remains relatively low it is only because Western countries have not yet learnt to eat them.

TABLE SHOWING PRICES OF WHEAT IN BOMBAY AND LONDON WITH EXPORTS FROM BOMBAY AND KARACHI—1884-1908.

Year.	Price per Quarter = 492 lb.						Total Exports of Wheat *from* the		Exports of Wheat from Bombay Port to the *United* Kingdom.
	Bombay.				London Average Price.		Bombay Port.	Karachi Port.	
	Price in January.		Price in July.						
	s.	d.	s.	d.	s.	d.	cwt.	cwt.	cwt.
1884	32	2	28	2	35	8	8,993,108	4,270,842	3,908,008
1885	26	8	26	5	32	10	10,608,187	6,241,017	5,286,548
1886	26	0	25	9	31	0	12,605,860	2,613,748	3,440,229
1887	28	7	26	9	32	6	8,540,614	660,758	2,020,511
1888	27	11	25	6	31	10	10,654,163	4,004,039	4,831,166
1889	30	1	26	10	29	9	5,146,861	7,100,282	2,821,283
1890	27	6	29	3	31	11	6,212,143	6,767,300	3,207,119
1891	30	10	30	11	37	0	14,480,808	11,125,000	5,533,235
1892	32	8	27	10	30	4	8,174,360	3,473,824	3,540,798
1893	26	6	24	6	26	4	4,700,180	6,418,317	2,092,453
1894	22	6	18	7	20	11	1,045,735	5,600,987	725,565
1895	19	11	20	2	23	1	2,797,842	6,192,816	1,460,749
1896	21	5	24	5	26	3	1,159,698	676,250	761,960
1897	44	11	33	3	20	2	377,594	1,936,912	70,181
1898	30	2	26	8	34	0	6,464,444	9,577,610	2,193,054
1899	24	5	23	3	25	8	2,310,535	5,008,847	868,966
1900	35	11	32	4	26	11	24,070	1,679	1,970
1901	26	7	28	6	26	9	83,297	7,173,299	12,805
1902	29	1	26	5	26	1	890,748	8,848,234	251,458
1903	26	2	25	7	26	9	3,690,762	17,687,110	2,426,100
1904	26	2	23	11	28	4	5,965,438	28,380,715	2,385,578
1905	25	2	27	8	29	9	3,455,263	12,956,926	920,473
1906	31	1	28	0	28	3	459,537	15,434,060	308,882
1907	26	10	31	9	30	8	553,462	16,928,864	385,678
1908	39	8	37	11	32	0	56,226	2,124,956	9,209

It must now be considered how the cultivator markets his produce, what part of its value he obtains for himself and what part is intercepted by the middleman. It has already been mentioned that lack of capital and lack of organization render the Deccan farmer's marketing operations very ineffective. In out-of-the-way tracts many cultivators still market their surplus produce by degrees throughout the year. This is particularly the case with rice; and in some markets rice can be purchased only in small quantities from individual cultivators who bring it to market every week in headloads. There is no middleman in such cases to intercept profits, but the process of marketing produce in this way involves much loss of time to the cultivator. In the case of jowari and bajri most of the surplus produce comes into the market immediately after harvest; and in the case of cotton, wheat and oil-seeds practically the whole crop is marketed at once.

When the cultivator is heavily indebted he is not in a position to take any steps to market his produce to the best advantage. The *savkar* comes down on him at harvest time and takes his dues, leaving the cultivator only a bare subsistence. Even when the debt is not so heavy as to leave the cultivator no real interest in the produce of his land, he is seldom able to protect himself in his dealings with the man who is at once his banker and his market, and who has sufficient hold on him to prevent him from taking his custom elsewhere. By selling his produce im-

mediately after harvest, when every one else is selling, and prices are at their lowest, the cultivator is bound to suffer loss. Apart from violent fluctuations due to good or bad seasons, the normal fall of prices after harvest amounts to from 10 to 20 per cent in the case of ordinary food grains, and temporary fluctuations are often larger. This will not appear excessive when consideration is paid to shrinkage, to the expense and risk of storing grain, and to the fact that interest is running all the time on the capital invested; but the fall in price that always occurs when the cultivator has anything to sell is an unfavourable feature in his business. Without capital, however, he cannot afford to hold up his produce for better prices; indeed he is lucky if he does not have to mortgage his crop in advance. Forward transactions of this kind are very common, and denote a large amount of floating indebtedness outside the mass of more permanent debt represented by mortgages on land. They take place in three ways. Sometimes a man will sell his crop outright a month or two before harvest for a lump sum paid down. Such transactions usually take place only amongst persons living in the same locality. The buyer in this case runs considerable risk, since the amount of produce may depend on whether a final fall of rain takes place or not. Full allowance is made for this risk in fixing the amount of the purchase money; and such transactions can seldom be profitable to the seller, though they may be convenient to him. The price paid is at least 25

per cent less than would be paid if the estimated crop were ready for harvest.

Another system is for the *savkar* to make an advance against a crop three or four months before harvest. The amount of such an advance is fixed so as to leave a wide margin to cover a partial failure of crops. The conditions include the payment of interest at the rate of from 9 to 18 per cent, and bind the cultivator to market his crop through the medium of the *savkar*, who eventually will deduct from the amount realized by the sale of the crop the sum advanced and the interest on this sum, together with fees for brokerage and sundry expenses, and will hand the balance over to the cultivator. In this way the cultivator puts himself into the hands of the *savkar*, and his power of bargaining is reduced to a minimum. It is frequently said that the *savkar* makes very good use of his opportunities, and that these fees for brokerage and sundry expenses are a source of considerable profit to him; while cultivators are wont to allege that in such cases they are often defrauded by false weighments and by the quotation of false market rates which they are unable to check. It is certain that advances are often made against the crop not so much for the sake of the interest charged, as for the sake of the custom and the miscellaneous profits that such transactions afford to the man making the advance. In a year when there is a keen demand for cotton, a dealer will even borrow money at a high rate of interest and

advance it to cultivators at a lower rate in order to secure custom. The dealer must obviously recoup himself in some way to cover this.

A third method by which the cultivator may dispose of his crop before harvest is the forward contract system. Such dealings take place with many large cotton firms. The latter enter into contracts with cultivators or smaller dealers to receive from them cotton at a fixed price at a fixed time, and a sum amounting to 5 or 10 per cent of the value of the cotton stipulated for is advanced as earnest money on the guarantee of a broker.

Arrangements of the various kinds mentioned above are very common in the case of cotton, and a few years ago most of the cotton crop changed hands on such terms; but during recent years the cotton cultivators of Khandesh have profited greatly by the high prices of cotton, and are able to dispense to a large extent with advances and to make better bargains after harvest. It is estimated that nowadays advances are made against only 25 per cent of the Khandesh cotton crop. Even this, however, means a good deal of money advanced. If we estimate the Khandesh cotton crop at 400,000 bales, worth Rs. 6¼ crores (including the value of the seed), and suppose that advances of various kinds are made against the whole crop, about Rs. 4 crores would be advanced, leaving Rs. 2¼ crores as margin for cover. Since, however, advances are made nowadays on only a quarter of the crop, the total sum

advanced would amount to about Rs. 1 crore. The advances are made from August up to November, when the crop begins to ripen.

Now it is inevitable that the middleman should intercept some part of the value of the crop. The cotton *dalal* (broker) puts the Khandesh cultivator in touch with the cotton markets of Bombay and Europe, and the bare charge for his services costs the cultivator about 12 annas for every acre of cotton that he cultivates. Similarly the *gul dalal* puts the Poona sugar-cane cultivator in touch with the Khandesh market, and for these services the cultivator has to pay him Rs. 14 for every acre of sugar-cane that he grows. Such payments are made against real services rendered, and no objection need be taken to them so long as they are moderate. But in small markets there is often little competition amongst the buyers; and the middleman is then in a position to take more than his fair share.

The marketing losses of the cultivator due to lack of capital have been noted. His losses due to lack of organization are also considerable. Probably the trade in cotton is better organized than that of any other raw produce, and will serve as a good example. The price of raw cotton is fixed with reference to the market price in Bombay of a bale of pressed cotton. The cultivator will not of course get the whole of this price for his equivalent in seed cotton of a bale of pressed cotton, even if the value of the seed be allowed for. Many transactions intervene between the time

that the seed cotton leaves the field and the cleaned cotton reaches its ultimate market; and for each a deduction must be made. Worse than that, at each transaction a leakage is liable to occur. The dealer and broker in seed cotton must be paid for their trouble and risk in buying, grading, and dealing in cotton. But this is not the only toll that they take; for they may, and often do, indulge in illegitimate mixing, adulteration, damping and other improper practices, against the risk of which the manufacturers or exporters can only protect themselves by offering a lower price. This means so much off the residue left for the cultivator. So also the gin owner and press owner must make a fair profit; but they are liable to combine to raise the charges for ginning and pressing, and when they do so it is the cultivator who ultimately pays the extra charge.

The cultivator in short suffers not only from his own lack of capital, from his own ignorance, and from his own lack of business capacity, but also from any bad management or fraud on the part of others that may take place in the handling of the produce anywhere along the line, whether it be on the part of the broker, gin owner, press owner, or railway company. In the case of produce consumed locally the consumer may share the loss so caused with the cultivator; but in transactions with the world's markets it is the cultivator who has to bear practically all the loss. An intelligent farmer may possibly find a way to reduce such losses; but as a unit he can effect but

little. The only thing that can in this connexion materially help the cultivators as a class is organization.

The possibilities of co-operative credit have already been considered. Those of co-operative marketing are not less great; but the subject is more difficult and needs more careful adjustment to the circumstances of each particular case. To work out an effective system of co-operative marketing suitable to any locality, to organize and sustain such a movement is a task which will require much patience and management. It may be hoped that when the co-operative credit movement is more firmly established some of the enthusiasts now working for that cause will look for new worlds to conquer, and will turn their attention to the organization of co-operative marketing, which offers so vast a field and promises so great a reward.

CHAPTER XII.

PROFITS.

PROFITS occur when a man produces more than he consumes. The farmer like every one else aims at making a profit; but the Indian cultivator will usually be content if he can produce enough to maintain himself and his family in reasonable comfort. The profits of the small proprietor consist of the net return after paying out wages, maintenance of stock, and other necessary expenses. They comprise two elements, viz., the return to the man for his own labour, and the interest on his invested capital.

It is customary to denote the profits of any business in terms of so much interest per cent on capital invested after allowing for the cost of management. This criterion of profits is suitable to farming on a large scale and on a capitalistic basis. But with the small proprietor capital is scarce, and interest is usually a smaller item in the bill than the labour of himself and his family. Further, the primary object of his business is not so much to obtain a good return on capital as to support himself and his family by means of a congenial occupation. In estimating his profits, therefore, it will be more convenient to make

a debit at a fixed rate of interest on account of his capital, and to consider the balance, whatever it may be, as his profits pure and simple: that is to say, the remuneration for his own labour and skill of management. It is difficult to work out satisfactorily the profit and loss account of a small peasant proprietor who supplies his own labour and consumes part of his own produce; but it is necessary to attempt such a calculation if any idea is to be formed of the state of his affairs. The results so obtained do not always represent positive facts; but if properly interpreted they will afford instruction and will usually indicate the strong and the weak points of the situation.

When a man owns land he has to consider whether he will undertake direct production by himself, or associate another man with him, or lease his land to another. This question must be settled on a consideration of the tastes and abilities of the man concerned, and the circumstances of the particular case. If the owner is not prepared to settle down on his land and work hard at his business, he had better not attempt direct production. In such a case he may associate with himself a working partner, and may still take an important part in the work of production by effecting judicious improvements in the land and placing the business transactions of the farm on a profitable basis. Even if he decide to lease out the land to a tenant his action will still have considerable influence on the profits obtained, if he selects his tenants carefully, gives them every incentive to

work, and uses his position so as to stimulate production. These matters have been discussed in a previous chapter, and it only remains to point out that in the encouragement of effective production the interests of the landowner are identical with those of the public.

The object of the farmer should be to obtain the largest possible profits over a series of years without reducing his capital or impairing the fertility of his land. In deciding on his scheme of production he will have to consider for what crops the conditions of his land are most favourable. But the land is not the only consideration. He has to consider the questions of labour and capital; for a crop that would otherwise give good profits may well be unremunerative if he has to pay too high for these. It will seldom happen that he will find it desirable to grow only one or two crops; and he will have to choose crops which require attention at different seasons, so that his labour may be spread as evenly as possible over the year. Finally he has to consider his market and adapt himself to any peculiarities or fluctuations of price that he may observe. It is only by keeping some kind of accounts that the farmer can locate the true sources of his profits and his losses, and so be in a position to frame a scheme to increase the former and reduce the latter.

Some writers have been at a loss to discover how any profit can be obtained from the production of jowari and bajri in the Deccan. Sykes, writing in 1827, stated that according to the estimates of cost

and outturn supplied to him by the cultivators in the Sirur taluka (Poona District) there appeared to be a dead loss on cultivation each year. Pringle, who based his settlement on a consideration of net profits, had a large staff engaged for years in estimating the average cost, outturn, and profits of cultivation on various classes of land. It may be of interest to give one of his estimates.

CASE I.

Estimate made in 1828 of the average profits derived from the cultivation of 40 acres of black soil in the Junnar taluka (Poona District). A team of four bullocks is used. Half of the land is under wheat, gram and safflower, and the other half under bajri, jowari and pulses.

ANNUAL COST.

Bullocks. Charge for depreciation and interest on capital	Rs.	19
Labour of two men and two women permanently engaged for the year, allowing 265 days' work in the year	,,	85
Dead stock. Charge for depreciation and interest on capital	,,	8
Manure purchased	,,	21
Cart hire	,,	3
Ropes	,,	1
Seed	,,	18
Extra labour	,,	2
Sacrifices	,,	5
Fees to village servants	,,	28
Total	Rs.	190

N.B.—The bullocks are regarded as being fed from the farm produce, and a deduction is made for this on the other side of the account.

ANNUAL RECEIPTS.

Wheat, gram and safflower	Rs. 169
Bajri, jowari and pulses	,, 141
Total	Rs. 310

Net profits on 40 acres, Rs. 120, or Rs. 3 per acre.

CASE II.

The following estimate has recently [1] been made of the net profits obtained on an actual farm of 30 acres of black soil land in the Sirur taluka.

STOCK.

Four bullocks	Rs. 250
Implements and accessories	,, 100
Total	Rs. 350

ANNUAL COST.

Interest, repairs and depreciation on stock	Rs. 81—8—0
Assessment	,, 37—8—0
Labour (four members of the family)	,, 270
Seed	,, 10
Bullock feed	,, 190
Manure	,, 15
Incidentals	,, 5
Total	Rs. 609—0—0

[1] Article by Rao Saheb Kelkar printed in the Poona "Agricultural College Magazine" for March, 1911.

ANNUAL RECEIPTS.

Grain, 240 maunds	Rs. 480
Fodder	,, 200
Manure	,, 15
Total	Rs. 695

The net profit on 30 acres would therefore be Rs. 86 per annum or very nearly Rs. 3 per acre, working out at almost exactly the same figure as the estimate made by Pringle eighty years before. The rainfall in the Sirur taluka is less than in the Junnar taluka, so that a smaller profit might have been expected in Case II. In point of fact the net profit in Case II is smaller than in Case I, since the purchasing power of Rs. 3 was eighty years ago about double what it is at present; and if the money values of eighty years ago are converted into their present day equivalent the profit of Rs. 3 per acre in Case I becomes Rs. 6.

CASE III.

The following estimate[1] has recently been made for a farm of 48 acres of black soil land in the Hubli taluka (Dharwar District) sown to the following crops:

Cotton and subordinate crops	20 acres
Jowari and pulses	20 ,,
Wheat and safflower	8 ,,

STOCK.

Four bullocks	Rs. 320
Implements and accessories	,, 231
Total	Rs. 551

[1] Estimate made by Mr. R. S. Hiremath.

ANNUAL COST.

Interest, repairs and depreciation on stock .	Rs. 184
Permanent labour (two men and two women engaged by the year)	,, 240
Casual labour	,, 254
Seed	,, 80
Feed for bullocks	,, 202
Manure	,, 112
Assessment	,, 144
Sacks	,, 25
Total	Rs. 1141

ANNUAL RECEIPTS.

Jowari	Rs. 350
Kadbi	,, 62
Jowari and wheat chaff	,, 75
Pulses	,, 88
Wheat	,, 120
Safflower	,, 48
Cotton	,, 650[1]
Crops subordinate to cotton	,, 48
Manure	,, 16
Total	Rs. 1452

Net profit on 48 acres—Rs. 311, or about Rs. 6½ per acre.

In each of the three cases given above the estimate is made on the assumption that the farming operations are carried on with an amount of capital and labour which is locally considered to be adequate for the production of the ordinary dry crops without exhausting the land or allowing it to get into a foul

[1] This estimate is distinctly low, even when the price of cotton is moderate.

condition. It will be seen that in each case the holding is found to be capable of supporting four adult members of *the holder's family, their remuneration being* calculated at the current rate for agricultural labour engaged by the year. In addition to this each holding will pay its assessment[1] and interest calculated at 9 per cent on the working capital employed, and will produce a net profit estimated at from Rs. 3 to Rs. 6½ per acre. These net profits may be regarded as representing the return to the landholder on the capital value of his land, taking the latter at Rs. 50 to Rs. 100 per acre in Cases I and II and Rs. 150 per acre in Case III.

The figures are based on the circumstances of actual holdings observed, and may be taken as denoting the approximate facts of economic holdings worked with fair skill, and equipped with a reasonable amount of capital. It must not, of course, be supposed that the figures represent more than a rough approximate average, since the profits on a given holding in a given year will obviously depend on a number of fluctuating circumstances. Still less must it be supposed that the figures are applicable to the circumstances of an uneconomic holding farmed with inadequate capital. They show that an economic holding will support a family in fair comfort, remunerating them for their labour and paying them a moderate interest

[1] It will be noticed that in Case I no allowance is made for assessment. It may be taken at about Re. 1 per acre.

on invested capital. This result agrees with common experience.

It will now be desirable to examine the items of the account to see how the net profits may be increased. The first point that comes to notice is that nearly half the cost of production consists of the labour bill, while the charges for labour and for cattle taken together amount to $\frac{2}{3}$ of the total cost. These then are the items that must be carefully scrutinized to see that there is no leakage. In the case of dry farming in the Deccan there must be some loss under these heads, since field operations must of necessity be at a standstill during a good part of the year. In some cases no doubt the men and the bullocks will during the slack season find employment in carting or some other work. In Case II, for instance, it is probable that at least one man and two bullocks would obtain some outside jobs during the hot weather; while if the family were in need of money possibly one man, one woman and all four bullocks would go off to find work at harvesting and crushing sugar-cane in the canal tracts. Some will remain at home, however; and it is in great measure because it utilizes the labour of such that an irrigation well yields good profits.

ESTIMATE FOR 1 ACRE OF IRRIGATED WHEAT IN WEST KHANDESH.

Cost.		Returns.	
1. 100 lb. seed	Rs. 7— 0	1500 lb. grain at Rs. 2—8—1 per 40 lb.	Rs. 94
2. Tillage and manure	,, 24—12	Chaff	,, 21
3. Harvesting	,, 2—12		
4. Irrigation	,, 37— 8		
5. Threshing	,, 9— 0		Rs. 115
6. Rent (including assessment)	,, 15— 0		
	Rs. 96— 0	Net profit per acre	Rs. 19

Rs. 19 net profit per acre is not very large; but it must be recognized that the operations included in items 3, 4 and 5 take place at a time of year when the *kharif* harvest is at an end in Khandesh, and when there is normally very little work for the people to do. In so far therefore as the cultivator can perform these operations without employing outside labour he adds an extra Rs. 50 per annum to the earnings of his family for every acre of wheat that he cultivates, in addition to the net profit of Rs. 19. This serves to illustrate the remarks made in chapter IV. regarding the advantages of having an irrigation well.

A cultivator farming about 30 acres and having an irrigation well containing water sufficient for one *mōt* (water lift) would use the water for some such crops as those mentioned below:—

CASE I (AHMADNAGAR).

½ acre lucerne grass (perennial).
½ acre *kadval* (fodder jowari) in the hot weather.
1 acre irrigated jowari or wheat.
½ acre irrigated gram.
¼ acre vegetables.

CASE II (RAHURI).

2 acres irrigated jowari.
2 acres irrigated wheat or gram.

CASE III (PANDHARPUR).

1 acre chillis.	1		
1 acre groundnut.	1		
2 acres jowari.	1	2	
2 acres spelt wheat.		2	3
2 acres hot weather jowari or maize.			3

CASE IV (SATARA DISTRICT).

2½ acres sugar-cane, or
3½ acres chillis, turmeric, groundnut and sweet potatoes, or
4 acres irrigated gram and wheat.

A man with one well working one *mōt* will usually apply the water mainly to ordinary grain and fodder crops, while a man with more than one well or with a well that will provide water for two or more *mōts* will generally grow the more valuable garden crops. Apart from this, different tracts have their specialities in garden crops cultivated under wells. Thus potatoes are grown in Khed (Poona), onions in Niphad (Nasik), figs and oranges in Purandhar (Poona), sugar-cane and turmeric in the Satara District, surans and ginger in Jalalpur (Surat District).

The following estimates of the value of the out-

turn per acre in the case of high-class garden crops will show the possibilities of profit.

Crop.	Outturn per Acre.	Value.
[1] Potatoes	12,000 to 15,000 lbs.	Rs. 200 to 380
[1] Sweet potatoes	13,000 lbs.	,, 300
[1] Onions	35,000 ,,	,, 230
[1] Surans	33,000 ,,	,, 1000
[1] Ginger	12,000 ,,	,, 300
[1] Turmeric and yams	15,000 and 7500 lbs.	,, 250 and 150
Sugar-cane	12,000 lbs. of gul	,, 1000
[2] Pan (*betel leaf*) Average for 8 years	Value per acre of gross outturn Rs. 2000 a year	*Net Profit* Rs. 1000 a year

The above figures show the gross outturns that can be obtained under favourable conditions by skilful cultivators with the help of well irrigation. On the other side of the account labour is always the heaviest item of expense, and after that the cost of sets for planting and of manure. The net profits will depend in great measure on the skill of the cultivator in keeping down these items of expense without impairing the efficiency of the cultivation. How greatly the net profits will vary according to the skill of the cultivator can be seen from the following figures of

[1] Estimate taken from Volume III of Mr. J. Mollison's "Text-book of Indian Agriculture".

[2] Article on the cultivation of the Betel-vine near Poona by Mr. D. S. Medadkar, published in the Poona "Agricultural College Magazine" for October, 1910.

net profits obtained per acre of sugar-cane in the case of 224 cultivators in the neighbourhood of Baramati (Poona District) whose operations were carefully supervised in the year 1908-9.

[1] Net Profits per Acre of Sugar-cane.	In how many Cases.
Rs. 500 to 600	4
„ 400 „ 500	5
„ 300 „ 400	19
„ 200 „ 300	49
„ 100 „ 200	78
Below 100	69
	Total 224

These variations are the more remarkable when it is remembered that the losses due to lack of working capital and to defective marketing were eliminated by the banking and marketing agency which Government had established at Baramati as an experimental measure.

It must not be supposed that it is intended to advise every well owner to undertake the production of high-class garden crops. Many a man has not the resources or the skill requisite for success in such a venture. For a poor man whose land is remote from a market it will often be more advantageous if he applies his well water to the production of ordinary grain and fodder crops; and the supply of extra

[1] Figures taken from the report for 1908-9 of the special officer appointed to supervise the Nira Canal tagai loans scheme.

fodder that he will thus obtain may be profitably utilized in rearing cattle. The advantage to a cultivator of combining cattle breeding with cultivation is that it broadens the basis of his operations and minimizes the risk of failure. The care and attention which the rearing of young stock require will occupy much of the spare time of a cultivator's family and will provide adequate remuneration. It will not pay to breed good stock if they are liable to be starved, nor will it pay to feed costly fodder to inferior stock. But in suitable localities cultivators who take trouble with breeding find that at present prices it pays them well to feed the young stock carefully and to see to their comfort at the trying times of the year.

No subsidiary industry that will bring in additional profits should be neglected. Sheep and goat keeping may be useful in this connexion, and so may poultry keeping. A plantation of good mango trees is often a very paying thing; and there are many cultivators who might plant a few graft mangoes with advantage. On rough ground and on the banks of streams it would often pay to produce fuel; and in some localities, such as Nandurbar taluka (West Khandesh) where teak will grow well, and many cultivators have more land than they can manage, a few acres of teak carefully planted out might give a good return in the form of poles in about thirty years. In some localities, the retting of *san* hemp gives occupation in the hot weather, and it is possible that *eri* silk and lac production may prove profitable in suitable tracts.

In the open black soil tracts, where the subsoil water is difficult to obtain and where cotton yields good profits, the cultivator may perhaps find it best to confine his operations to the cultivation of a few staple crops; but he can seldom afford to neglect any sources of subsidiary profit that may be open to him. In western countries it is usually from such sources that the small holder pays his way.

The following account of a small holding in Belgium will illustrate the point:—

Area of farm—8 acres, containing a cottage and sheds.
Rent—£25 a year.

The family consisted of the holder, his wife and three sons.

DISTRIBUTION OF FARM LANDS IN SUMMER, APART FROM CATCH CROPS.

[1] Area of cottage, buildings and yard	¼ acre
Pasture	¾ ,,
Rye	1¼ ,,
Wheat	1½ ,,
Oats	⅛ ,,
Flax	⅜ ,,
Potatoes	1 ,,
Clover	½ ,,
Beet	½ ,,
Chicory	¾ ,,
Wood	½ ,,
Total	8 acres

LIVE STOCK ON THE FARM.

4 cows, 3 calves, 3 pigs, 1 goat, rabbits, poultry, pigeons.

[1] Details regarding the farm supplied to the author by the farmer.

Fruit trees were grown on the walls of all the farm buildings. No manure of any kind was wasted. The cultivation was all done with the help of the cows.

In spite of the smallness of the holding and the high rent the family was doing well. They certainly lived frugally and worked hard; but they were said to be saving money. The secret of their success was the broad basis on which their operations were distributed. Nothing was wasted, least of all time. In the winter, when few field operations were taking place, they were engaged in looking after their live stock and in scutching the flax.

It is not possible to put forward any ready-made scheme of production for such and such locality or class of cultivators. Each scheme must be worked out with reference to a particular case, and must be modified and brought up to date as experience indicates. General principles may be enunciated, but the success of their application by the man concerned will depend upon his adequate appreciation of all the factors in the case.

PART V.

STATE AID TO AGRICULTURE.

CHAPTER XIII.

THE LIMITS OF GOVERNMENT ACTION.

In a country where three-quarters of the population depend directly on agriculture a large part of the legislative and executive action of Government must, of necessity, be connected with the welfare of the cultivators. In India there is hardly such a thing as a farming interest or a landed interest apart from the general interest of the community, since almost every one has some connexion with the land and with agriculture.

The position of Government with regard to the land, and the laws affecting the distribution of the land and the relations of landlords and tenants have already been described; and an account has been given of the action which Government has taken to supplement and organize agricultural credit. It is now proposed to indicate a few other directions in which Government action has been taken on behalf of the farming interest in other countries and to con-

sider how far any such action is called for in the Deccan.

In the first place there arises the thorny question of protective import duties which many countries impose in order to protect farmers against the unrestricted competition of foreign countries in the home market. Of all the agricultural produce that is consumed in India only one article which can be produced locally is the subject of a large import trade, and that is sugar. It is therefore unnecessary from the agricultural point of view to deal with the general question of protective duties, and it will suffice if the facts concerning the production and import of sugar are considered.

In the Deccan there are about 35,000 acres under sugar-cane, producing 90,000 tons of raw sugar valued at Rs. 2 crores. As against this local production there is an import of nearly 20,000 tons of foreign, refined sugar, mainly from Java and Mauritius. It is sometimes argued that since India can produce sugar it ought to be encouraged to produce all the sugar that it requires, and that the necessary stimulus would be given if an import duty were placed on refined sugar. Now it has already been pointed out that under existing circumstances sugar-cane cultivation is a most profitable industry and admits of large profits being made. Granted a reasonable amount of capital and a moderate amount of skill, a net profit of Rs. 200 per acre can be obtained. Perennial irrigation is in the Deccan essential to sugar-cane grow-

ing, and it is the lack of such facilities that limits the area under this crop. Lack of capital also is another determining factor in the case; for the crop is one which requires much capital per acre planted. Unless more water and more capital can be made available, more cane cannot be grown except to a small extent at the expense of fruit, vegetables and other garden crops; and there would be no object in stimulating sugar production at the expense of other valuable crops which are needed for local consumption.

It may be argued that, if prices were enhanced by means of protective duties, more capital would be attracted into the business of cane growing and more wells would be dug. After what has been said regarding the great advantages derived from irrigation wells, the idea of encouraging the construction of new wells by this means may appear attractive; but a consideration of the facts will show that it is very doubtful whether any marked result could be obtained by this means. The table on page 184 shows the condition of the sugar industry and trade in the Deccan in recent years.

It will be seen from columns 2 and 3 that the sugar-cane industry received a severe check from the famine of 1899-1900, which caused the area and outturn in 1900-1 to fall to less than half their previous figures. This result was mainly due to temporary shortness of irrigation water. The effects of the famine, however, continued to be felt long after the water supply had righted itself; and the production of sugar,

AREA UNDER SUGAR-CANE IN THE DECCAN AND ITS OUTTURN; TRADE IN SUGAR AND PRICES OF SUGAR AND GUL, ETC.

Year.	Area of Sugar-cane in the Deccan.	Outturn in Tons.	Value of Gul Produced.	Imports of Foreign Sugar into the Deccan.	Price per Ton of Sugar.	Price per Ton of Gul.
1	2	3	4	5	6	7
	Acres.	Tons.	Rs.	Tons.	Rs. A. P.	Rs. A. P.
1899-1900	42,095	120,572	19,078,003	6,923	227 2 2	158 3 8
1900-1	20,961	49,127	8,873,820	11,516	234 12 8	180 10 1
1901-2	30,012	85,963	18,841,120	12,521	227 6 9	219 2 10
1902-3	32,320	93,288	12,438,400	10,188	209 15 8	188 5 4
1903-4	33,270	95,294	16,186,579	14,313	206 3 7	169 7 0
1904-5	33,694	96,509	21,360,659	18,031	221 2 11	221 5 6
1905-6	34,706	99,408	19,344,925	17,419	211 1 3	195 12 10
1906-7	31,803	91,098	16,814,250	17,489	167 0 0	185 9 4
1907-8	33,889	82,663	17,198,904	17,001	188 6 10	208 0 0
1908-9	35,831	87,152	17,352,780	16,914	200 12 3	199 1 9
1909-10	34,728	92,182	20,598,684	19,963	211 1 10	212 11 7

though it shows an upward tendency, has not yet reached its old level. This is due to shortness of capital, which is a normal complaint in the Deccan and is intensified by bad seasons. Column 5 shows that the falling off in local production has been made up to some extent by increased imports of foreign

sugar. Column 7 shows that, excluding the year 1901-2 when the high price of *gul* was a scarcity price caused by the short production of the year before, the price of *gul* during the last six years has been 25 per cent higher than the previous average. This is due mainly to the increased demand for *gul* on the part of the cotton cultivators. The increase of price, however, has not served to stimulate in any marked way the production of sugar, which is limited by the supply of irrigation water and capital available. The price of *gul* is already sufficiently remunerative, and nothing would be gained by increasing the profits of the cane-growers, by means of an import duty, at the expense of their less fortunate brethren who have no facilities for irrigation. If it is desired to stimulate cane growing, the best means is to increase the facilities for irrigation and to organize agricultural credit. The measures that are being taken in these directions have already been described.

So far we have dealt only with sugar in general. The question whether it is more profitable to produce raw sugar or refined sugar is quite distinct. It appears to be sometimes thought that there is some special virtue in producing refined sugar, and that efforts ought to be made in this direction. A consideration of the figures in columns 6 and 7 in the above table will show that during the last six years the average price of *gul* (raw sugar) has been higher than the price of refined sugar. This being so, there is obviously no object in undertaking a costly opera-

tion which will not only reduce the quantity of sugar *produced by one quarter*,[1] but which will actually reduce the value per ton of what is left. The people in the Deccan prefer *gul* to refined sugar, and at present prices there is absolutely no opening for sugar-refining in this part of India.

It does not follow, however, because there is now no opening for sugar-refining in the Deccan that there never will be an opening. On the contrary, there are several considerations that make it doubtful whether the profits of producing raw sugar will be maintained for long at their present level. In the first place, it is possible that the taste for *gul* may decline and the taste for refined sugar increase. In other parts of India sugar is consumed in preference to *gul*, and there is no doubt that in the Deccan some classes are beginning to use sugar in a way that they did not do a few years ago. If this tendency increases greatly, the price of *gul* must fall. Further, it is quite likely that the continuous improvement in the process of sugar manufacture which is being made in other countries will tend to lower the price of refined sugar. As this occurs, it will stimulate the tendency to substitute the use of sugar for that of *gul*.

Moreover, while the demand for *gul* may possibly fall off in the near future, the supply is certain to increase when the new irrigation canals now under con-

[1] In refining sugar about 25 per cent of the raw article is separated out in the form of molasses.

struction are in full working order. Thus, with an increased supply and a decreased demand the price of *gul* may fall to a level at which it will be much less remunerative to the cane-grower. In this case, it will be possible to maintain the sugar-cane cultivation in the Deccan only by refining sugar; and the refining business can be conducted with profit only by means of the most up-to-date machinery and organization such as has been adopted by Java, Mauritius and the other countries which now flood India with refined sugar. The purchase and erection of the machinery is a matter of capital. The provision of the capital might present some difficulty, but, at any rate, the difficulty will be a straightforward one. The difficulty of organization will be far more complex, since it involves placing on a capitalistic basis the operations of a large number of small cane-growers, co-ordinating the cultivation of a large area of cane, and concentrating the whole business on a central factory. It will be instructive to notice how other countries have tackled the problem of forcing the organization of small cultivators into effective lines of production.

In Java about the year 1830 General van den Bosch conceived the idea of compelling the Javanese cultivators to grow on a fixed portion of their lands certain valuable crops, such as sugar, coffee, tobacco, tea and indigo, which would find a ready market in Europe; and he introduced the well-known system of "forced cultivation". The State supervised and

directed the cultivation of these crops, collected the produce and marketed it wholesale, paying the cultivators what it considered a fair remuneration for their labour. Its profits consisted of the difference between the price at which it bought and the price at which it sold, amounting to from 50 to 200 per cent. In this way, the practice of growing and handling valuable crops was established in Java on a large scale to the great profit of the Government and to the advantage of the cultivators. About 1870 this system of forced cultivation was discredited on grounds of equity, and has been abandoned. The cultivation of these valuable crops requiring capital and organization and the large profits derived from them have now passed to the large private estates which have been formed by capitalists out of waste lands in the parts of the island where the population was scanty. The Government has withdrawn from the business, and the small cultivators have neither the desire nor the means to continue it.

In Formosa the Japanese Government had a similar problem to face. Japan acquired Formosa from China in 1894 and spent the next four years in reconquering the island from the inhabitants, who were unwilling to accept Japanese rule. In 1898 Japan was able to turn to the economic development of Formosa.

It was seen that the sugar-cane was handled by primitive and ineffective methods very similar to those now used by cultivators in the Deccan. The Japanese

Government determined to put a stop to this waste, and in 1900 subsidized a sugar factory which was furnished with modern machinery. The cultivators, however, refused to sell their cane to the mill, and the police were called in to compel them to do so. Under Government pressure several small Chinese-owned factories were started, but were complete failures; and in 1904 there was only the one State-aided sugar factory in existence. In 1905 the Japanese Government resolved on drastic measures to stimulate the sugar industry. They enacted that the farmers in any district which may be allotted by the Sugar Bureau to a factory *must* sell their cane to that factory, and are forbidden to deal with the cane themselves. The penalty for erecting one of the old style buffalo mills is a fine of Rs. 300. Under these regulations, nine sugar factories equipped with modern machinery were erected in Formosa between 1905 and 1909 without any subsidy or assistance from Government. To each of these factories is assigned a district, the farmers of which are bound to sell their cane to the factory. It was feared that the farmers might cease to produce cane as a protest against this compulsion, and to obviate this the Government offers a subsidy amounting to about Rs. 15 for every acre of cane planted. This subsidy is given in the form of fertilizers. Of the nine sugar factories now at work in Formosa six are Japanese, two British and one native Formosan. Formosa has now taken its place in the world's market as an exporter of refined

sugar, and the industry is said to be profitable to the Government, to the factory owners, and to the farmers.[1]

If the price of *gul* in the Deccan were to fall to a point at which cane growing became unremunerative, the problem of finding the best means of introducing sugar refining would arise. It is improbable that unaided private enterprise would establish an industry which could compete with the foreign sugar now poured into India from Java and Mauritius, where production is already well organized and in a high state of efficiency. If a local industry were to be established State aid would be necessary in the initial stages. The easiest way of giving such aid would be by means of an import duty, which would, at the same time, be a source of profit to Government. But the most effective method of stimulating the industry into existence would probably be some form of subsidy or bounty.

It must be recognized, however, that neither of these expedients could be successful unless steps were taken to organize the cultivation and sale of the cane so as to suit the requirements of factory production. There is no waste land out of which large private estates can be formed as was done in Java; and some compulsory action such as was taken in Formosa would be necessary. Whether it is desirable at any time or place to enforce such measures is a matter

[1] Consular report for the year 1908 on the sugar industry of South Formosa.

which is obviously dependent not solely on economic considerations. Meantime all that can be done is to improve the existing methods of growing and handling cane and of manufacturing *gul* ; and for this there is a wide field.

The discussion of the sugar industry was introduced in connexion with the question of import duties. It also provides an illustration of methods of State aid by means of subsidy or bounty. In many countries the sugar industry has been fostered by such means; and the principle involved is susceptible of application to other industries connected with agriculture. To take two cases that have already been mentioned, it has been stated in previous chapters that two great difficulties of the Deccan farmer are to keep his lands free from deep-rooted weeds and to provide a reserve of fodder for his cattle against times of famine; and it has been suggested that the solution of these difficulties would be aided by the use of steam ploughs and of hydraulic fodder presses. To start such operations implies the formation of companies for the purpose and the establishment of industries subsidiary to agriculture. It is probable that such companies could be made to pay; and it is likely that their operations would afford material assistance to agriculture. But, in the Deccan, capital is scarce and does not readily discover or embark on new and speculative lines. To stimulate such movement, encouragement of some kind is necessary; and the most obvious form

for it to take would be a State subsidy given in the initial stages of the operations. In Western countries it is sometimes contended that such interference on the part of the State is unnecessary and is even harmful, since it interferes with private enterprise and produces unnatural conditions which are inimical to development on sound lines. Such arguments are hardly applicable to Indian conditions, where the public look to the State for guidance and aid in their endeavours far more than is the case in the West.

Turning to other kinds of State action, the stringent regulations for the prevention of cattle disease (*vide* p. 125) which are enforced in other countries are a case in point. Regulations of this nature have often been proposed for India, and in some provinces legislation of this kind has been undertaken; but the provisions of the law have never been put in force, and have consequently proved totally inoperative. It is now generally held that without enforcing the slaughter of diseased cattle nothing effective can be accomplished, and that in India such action would be impossible. It is, in fact, difficult to suggest any measures of this nature about which it could not be said either that they were too weak and ineffective to be of any use, or that they were too drastic and objectionable to suit the temper of the people. The matter, of course, cannot be decided without reference to public opinion; but public opinion is not likely to take the lead in the matter. It has to be created; and in creating it, a law which is steadily enforced

may often be of considerable educative value. Foot and mouth disease is very prevalent in the Deccan, and in some years runs right through the Presidency, causing immense loss. It is spread in great measure by affected cattle passing along the public roads and fouling them in their passage. A law which made it punishable for a man to drive his affected cattle or to allow them to stray on a public road might do much to educate public opinion on the matter. To be effective, however, it would have to be administered with firmness and discretion; and this, no doubt, involves a difficulty; for it is worse than useless for a Government to enact a law and then lack the resolution to enforce or even to retain it.

The fate of the legislation known as the Cotton Frauds Act is a case in point. It was found that the practice of adulterating cotton with all kinds of foreign matter and of fraudulently mixing inferior cotton with the better varieties and passing the mixture off as superior cotton was very common, and that it reacted very unfavourably both on the cotton-growers and on the cotton-spinners. Consequently, in 1863, an Act was passed by the Bombay Legislative Council known as the Cotton Frauds Act, which made it a penal offence to adulterate cotton by the admixture of stones, dirt, seed or inferior cotton, and established a system of inspection by Government officials appointed to enforce the provisions of the law. In 1864, the Bombay Chamber of Commerce reported that as a result of this action there was "a very marked im-

provement in the general freedom from seed and wilful adulteration which had become so growing an evil previous to the passing of the Act". This improvement was maintained and increased for some years. *Subsequently, however, the system of* inspection was found distasteful by the Cotton Trade; and after an agitation of several years by the Bombay Chamber of Commerce, supported by the Chambers of Liverpool and Manchester, the Government of India, on the advice of the Secretary of State for India, overruled the views of the Bombay Government and directed them to repeal the legislation. Consequently in 1882 a bill was passed repealing all previous legislation on the subject of cotton frauds. The result of this was, as subsequently admitted by the Liverpool Chamber of Commerce, "an immediate revival of adulteration which has become year by year more extensive, more systematic and more skilfully conducted".

This adulteration had the effect of practically closing the Liverpool market to the finer varieties of Indian cotton. It still continues, and, though the effects of it are sometimes exaggerated, remains a subject of complaint on the part of the cotton-spinners, and cannot fail to be prejudicial to the interest of the cultivators who grow the finer varieties of Indian cotton. Now it is quite intelligible that this legislation was objectionable to those who wished to indulge in fraudulent adulteration, and it is quite likely that the system of inspection may have been irksome to

honest firms and susceptible of improvement; but there is no obvious reason why the cultivator of Broach cotton should not be protected against such fraudulent practices, just as much as the English farmer is protected by law against the adulteration of fertilizers, or the English public against the adulteration of milk. The cotton-dealer can cut his losses due to this cause by paying less for his cotton, so as to cover the risk of adulteration; and he does so. It is the cultivator who bears the greater part of the loss.

This matter is merely mentioned by way of illustration, and it is not proposed to discuss the question in detail. Opinions will differ as to the limits to which State interference should be pushed; but it will be generally admitted that in a country where enterprise is deficient and public opinion is weak, the scope for State interference is greater than in a country where these conditions do not exist. In India it is certain that the general public, far from resenting the intervention of Government in their daily affairs, look to the legislature to standardize the best public opinion, and to the executive to give them confidence in embarking on new ventures.

CHAPTER XIV.

THE WORK OF THE AGRICULTURAL DEPARTMENT IN THE BOMBAY PRESIDENCY.

THE idea that improvement in Indian Agriculture was possible and should be encouraged suggested itself to the authorities more than a century ago. As early as 1788 the Court of Directors of the East India Company requested the Government of India to afford every encouragement to the production and improvement of cotton; and within a few years of that date a series of measures which, continued till about 1850, was undertaken in almost every part of the Bombay Presidency for the improvement of Indian cotton.

These measures consisted, for the most part, of importing and distributing seed of valuable foreign varieties of cotton. The varieties distributed were chiefly American seed, such as New Orleans, Upland Georgian and Sea Island; but the seed of Egyptian, Bourbon and other kinds was also tried. In some cases land was sown with such cottons under the supervision of Government officers; in other cases the cultivators were induced to try the seed, and sometimes were given a subsidy for doing so.

Most of these experiments were supervised by the Collectors of the various districts, many of whom took a keen interest in the work; but on some occasions special officers were deputed to conduct the experiments, and in 1840 three American cotton-growers were brought to the Bombay Presidency for the purpose.

Apart from the introduction of exotic seed, efforts were made to improve cotton cultivation by showing on the experimental plots the advantage of clean cultivation, by offering inducements for clean picking, and by introducing improved machines for ginning and pressing cotton.

These efforts were somewhat spasmodic, as was inevitable from the nature of the organization under which they were conducted, and they led to few tangible results. Many of the varieties of cotton introduced were from the beginning found to be unsuitable to the local conditions under which they were tried; others gave good promise of success which in the long run was not realized. In some cases the lint produced was found to command a fair price in England; but the plant was either less prolific or more delicate than the indigenous variety, or there was a difficulty in disposing of the produce. The net result of all these early efforts can now be traced only in the existence of a considerable area under American cotton in the east of the Dharwar District sown annually with seed descended from the American cotton introduced as far back as eighty years ago, a

mixture of cotton of the American type amongst the various short-stapled varieties grown in the Deccan, and numerous bushes of Bourbon cotton grown in gardens and hedges in the Konkan.

Apart from cotton, the Bombay Government turned its attention to experiments in other directions. Experiments in silk production were conducted in the Deccan, Southern Maratha Country, and Gujarat between 1823 and 1882, but only served to demonstrate that though silk can be produced it is most unlikely that silk production can be made a financial success on this side of India.

Tobacco was another crop which received considerable attention, and from 1865 onwards experiments in growing and curing exotic tobaccos were conducted at Nadiad (Gujarat) by Government and by the *Desais* of Nadiad. Seed of American, Havana and Sumatra tobaccos was obtained, and it was shown that good crops of these varieties could be grown. Difficulties in curing occurred, and on several occasions men who claimed to be expert curers were engaged. Curing sheds were erected and machines were purchased by the *Desais* of Nadiad at considerable cost; but the product was not satisfactory. It was then recognized that the conditions at Nadiad presented difficulties in producing high-class tobacco, and that these difficulties lay both in the growing and in the curing; but how far the failure was due to defective growing and how far to defective curing remained doubtful. Tobacco curing is a highly tech-

nical business; and it is unlikely that progress will be made until the services of a really experienced and competent curer are secured for an adequate period.

A botanical garden was established at Kaira (Gujarat) in 1837 to grow medicinal plants, and another at Hivra (Poona District) in 1841, which may claim credit for introducing into the Poona District the cultivation of potatoes and the *Kamod* varieties of rice. Both gardens have since been abandoned.

As a result of the famine of 1876-7 a commission of inquiry was appointed, which recommended the formation of an Agricultural Department. Attempts had been made to improve particular crops; but it was felt that something more was required than spasmodic efforts conducted by any person who might happen to be available, and directed by nobody in particular.

In 1883 an Agricultural Department was createc in the Bombay Presidency on a very modest scale, a Director was appointed, and investigations were takei seriously in hand. The beginning was of necessit small, but would certainly have led to better thing if it had been adequately supported and developec But this was not done. An idea that it was impo sible to effect any improvement in Indian agricultu was seriously put forward, and was accepted b many; while others, who believed that progress wa possible, contended that all that was necessary was bring out a few Scotch gardeners to show the peop how to cultivate. Funds were not provided for d

velopment, and in 1887 the Director of Agriculture became Director of Land Records in addition. In 1893 he took over the work of the Survey Department, and the last straw was added in 1901 when he was further saddled with the superintendence of the Registration Department. Some valuable preliminary work was done during this period, which is now of much use; but it took the great famine of 1899-1900 and the recommendations of another Famine Commission to make it clear that a very different scale of organization was necessary if any real improvement in agriculture was to be obtained. In 1905 the department was put on a new basis, the Director of Agriculture was relieved of his other duties, and funds were provided that would admit of some real development. It is proposed to give a brief account of the lines on which the department is now working.

The Bombay Agricultural Department is at present supervised by a Director and two Deputy Directors, while the staff of the Agricultural College and Research Institute situated at Poona includes an Agricultural Chemist, an Economic Botanist, and a Professor of Agriculture, who take considerable part in the work of the department in other parts of the Presidency.

Thirteen agricultural stations and a number of sub-stations have been established in various parts of the Presidency which serve as experimental farms, as a demonstration to surrounding cultivators, as centres for the supply of seed, manures, and implements, and

as places where the cultivators may apply for information and assistance.

There are four divisional inspectors of agriculture, each provided with a staff of assistants, who undertake, amongst other duties, to hold itinerant demonstrations of agricultural practices which have been proved to be beneficial.

Special branches for the study of entomology and mycology, and for the improvement of cotton and wheat have been created. A strong botanical branch also has been established, with two botanical gardens in which exotic plants are tried and acclimatized, plant breeding carried on, seed selection practised, and horticulture developed.

An Agricultural Engineer has been appointed who undertakes to advise cultivators on the subject of agricultural machinery, and is prepared to purchase and set up such machinery for those who apply for his services. In this way a number of oil, steam and gas engines for lifting water for irrigation or for driving sugar-cane crushers have already been erected. Eight well-boring parties are at work in Gujarat, and with the help of a simple but ingenious apparatus add each year to the existing supply an amount of water sufficient to irrigate about 200 acres.

The Civil Veterinary Department can boast of a well-equipped college in Bombay where a three year course in veterinary science and practice is given; and a district organization under a Superintendent, which provides for the working of forty

veterinary dispensaries, a staff for the control of contagious disease, a stock farm for the provision of good breeding bulls, and forty stallions maintained for the encouragement of horse-breeding.

A number of agricultural associations have also come into existence whose object is to assist and supplement the efforts of the department. Many of these associations organize agricultural shows and exhibitions. Bulletins and leaflets in the various vernaculars, dealing with matters of agricultural importance, are issued and widely distributed; and two agricultural monthly journals in different vernaculars are published and largely subscribed to by the public.

The Agricultural College and Research Institute at Poona has been mentioned. It is the headquarters of the departmental organization, provided with excellent buildings, fully equipped laboratories, and a strong staff. An advanced three year course in scientific and practical agriculture is given at this college, and a university degree is conferred on the successful students. A one year course in practical agriculture is also given.

A vernacular agricultural school for the sons of cultivators has been established near Poona, at which forty boys, the sons of substantial cultivators who till their own lands, are boarded and given a two year course of instruction in practical agriculture, while at the same time their general education is continued on suitable lines. Similar schools will

shortly be started in the south of the Presidency and in Sind.

Short courses for cultivators are given at various agricultural stations in specific subjects, such as dairying, sugar-cane cultivation, *gul* making, and seed selection.

During the five years since the Department has been reorganized much of its energy has inevitably been expended on its internal expansion, and it is hardly to be expected that extensive changes should already have been introduced into the general methods of cultivation; nor is it proposed to attempt to detail the results which have been accomplished. A few points, may, however, be mentioned in which marked progress has already been made.

The great advantages of improved iron ploughs have been brought home to the cultivators and large numbers have been purchased by the people of many tracts. On a single canal in the Poona District there are a thousand such at work, and in a single village in the East Deccan a hundred may be found, to the great advantage and satisfaction of those who use them.

The value of oil-cake and sulphate of ammonia as manures for sugar-cane has been proved, and their use is being introduced. The advantage and econom of green manuring for many crops is being demon strated. Improved processes of *gul* making, whic decrease the cost of the operation and enhance th value of the product, are being readily taken up by tl

cultivators. Leguminous crops are being introduced into parts of Sind where they were unknown before. Reclamation of salt land has been successfully carried out on a large and practical scale in Sind and on an experimental scale in the Deccan.

Foreign varieties of groundnuts have been introduced, and during the last eight years distributed on a large scale. The success whicb has attended their distribution in the Deccan may be seen from the following figures:—

	Area cultivated with Groundnuts in the Deccan.	Net Export of Groundnuts from the Deccan.
	Acres.	Maunds.
1902-3	56,000	100,000
1903-4	72,000	115,000
1904-5	74,000	164,000
1905-6	76,000	211,000
1906-7	92,000	300,000
1907-8	112,000	175,000
1908-9	110,000	316,000
1909-10	127,000	893,000

Seed selection has been carried on in the case of many crops, and large quantities of good seed are distributed every year. It is not possible to give any account of the work done in connexion with the various crops; but a few details regarding the results obtained in the matter of cotton improvement may not be out of place.

Cotton remains, as in former times, the crop which

offers most prospects of improvement, and systematic experiments have been made with a view to see what can be done in this direction. Except in Sind and to a limited extent in the extreme south of the Presidency it has been found that exotic cottons offer little chance of success. In Sind, however, it has been demonstrated on a large scale that in one locality a strong useful quality of Metaffifi (Egyptian brown) can be grown, which will grade with "fully good fair" Egyptian brown; that over the greater part of Sind various American cottons can be grown which will grade well above "Middling American"; that these cottons are hardy, will give a good outturn per acre, and will supply just the kind of raw material required by Lancashire. In the rest of the Bombay Presidency the results obtained show that it is in the direction of improving the indigenous cottons that success is indicated, and that by hybridization and selection a substantial improvement may be obtained in both quality and quantity. In Lower Gujarat where the soil is rich and very retentive of moisture, and in the Southern Maratha country where the best distribution of rainfall occurs, the efforts to improve the quality by hybridization and selection have met with considerable success, considering the short time during which they have been employed. The seed so produced is eagerly taken up by the cultivators, and during the present season 10,000 acres in the neighbourhood of Surat have been sown with such seed, and a Bombay syndicate will buy the produce at a

price 5 per cent higher than that of the ordinary local cotton. It will be well worth this extra price, since it is good for spinning 30's to 32's as against the local (Broach) cotton which will spin only 16's to 20's. The question of increasing the quantity of produce is not neglected in the case of any seed selection, and is the chief feature of several lines of cotton work. Thus in Khandesh a variety of cotton (Roseum), which forms one of the ingredients in the mixture which is sown in those parts, is found to give a much larger yield of seed cotton than the other varieties that are sown along with it, and the seed cotton of this variety has a higher ginning percentage, which means more lint per unit of seed cotton produced. Pure seed of this variety is now in great demand amongst Khandesh cultivators. It is being supplied, and will in a short time produce a marked effect on the yield of Khandesh cotton.

So also in the Southern Maratha country where Broach cotton is being introduced. The yield of seed cotton of this variety is not markedly greater than the yield of seed cotton of the local variety (Kumpta), nor is the quality markedly superior; but Broach cotton has a ginning percentage of 34, while Kumpta cotton has a ginning percentage of only 25. This means that for every 100 lbs. of lint that is obtained from Kumpta seed cotton, 136 lbs. of lint is obtained from an equal quantity of Broach seed cotton, or an increased production of 36 per cent. This cotton was introduced into the Southern Maratha country only

four years ago. Its cultivation is steadily extending, and at present some 5000 acres are sown with it.

The above account aims at no more than giving a general idea of a few lines of profitable work that are now being undertaken. That there is a vast field for improvement is abundantly evident. The outturn of large areas can easily be doubled by means of clean cultivation; and given clean cultivation, great advantage may be obtained by the use of good seed and adequate manure. An extended knowledge of the movements of soil moisture and the best methods of conserving it will be of immense value to the drier tracts, while improved implements will not only cheapen production, but will enable the cultivator to perform his cultural operations in good time, so as to take full advantage of the rain which falls, instead of being habitually behind-hand, and thereby losing a great part of the short cultivating season.

An essential point is that every line of work shall be based on a due appreciation not only of the physical problems but also of the economic problems involved. The difficulties connected with the distribution of the land and the supply of labour and capital have been dealt with in previous chapters. Apart from these fundamental problems it will be realized that it is of small use to introduce a new crop unless arrangements are made to find a market for the produce; that it will effect little to recommend the use of improved implements unless arrangements are made for their supply and repair; that it is not

sufficient to advise the people to store more fodder without arranging to overcome the difficulties which now prevent them from doing so.

To work in this vast field the Agricultural Department has been reorganized. It has made a start, but no more than a start. Its present budget provision is only Rs. 6,35,000 (£42,000), which is a modest sum to devote to the work in hand throughout a tract considerably larger than the British Isles.

There are now working in the department forty-five graduates fresh from the Agricultural College; and it is upon the amount of resource and energy which these men will display that the success of the Department must in the long run depend. It is essential that the Department shall expand and develop with a steady and sustained growth; and it is certain that if this takes place it will produce a great and beneficial effect on the agriculture of the Presidency; and that year by year the Department will identify itself more and more with the lives and interests of the cultivators.

GLOSSARY OF INDIAN TERMS FOR THE USE OF ENGLISH READERS.

Bagait = Irrigated land.

Bania = Grain dealer and shop-keeper.

Bhusa = Bran or chaff.

Bigha = A surface measure, which may be usually taken to denote ⅝ of an acre.

Dalal = Broker.

Deshmukh and *Deshpande* = Hereditary revenue officers.

Ghaut = Mountain. The term is usually applied in the Deccan to the range of hills that skirts the Deccan on the west.

Gul = Unrefined sugar, known also as *jagri*.

Hakdar = Person having the right to levy an annual contribution from cultivators.

Havildar = A rank in Government service, nowadays applied to military service only, but formerly used in connection with civil service also.

Inam (= present) = A form of land tenure which carries partial or complete exemption from the obligation to pay revenue.

Jaghir (or *saramjam*) = A grant of land on military or political tenure.

Jamabandi = The assessment of the annual land revenue.

Jirait = Unirrigated land.

Kadbi = Jowari stalk, used as fodder.

Kamal = The name given to the revenue settlement introduced by the Peshwas.

Kharif = The term applied to the early crops, grown between June and November.

Kunbi = A Maratha cultivator.

Kowl = A document by which Government used in former times to convey to individuals a temporary title to land.

Lakh = *Vide rupee.*

Mamlatdar = A Revenue officer.

Mirasi = An old form of land tenure.

Mirasdar = A man holding land on *mirasi* tenure.

Mot = A leather water-bag used for lifting water from a well.

Patasthal = Land irrigated from a water-channel.

Patel = Village headman.

Rabi = The term applied to crops grown between September and February.

Ryot = Cultivator.

Rupee = One rupee is worth one shilling and four pence. It contains sixteen annas. An anna is therefore exactly equivalent to a penny. Fifteen rupees (Rs. 15) = £1. Large sums of money are in India expressed in lakhs and crores of rupees.

One lakh = 100,000.

One crore = 10,000,000.

A lakh of rupees (Rs. 1 lakh) = £6666.

A crore of rupees (Rs. 1 crore) = £666,666.

Saramjam = *Vide jaghir.*

Savkar = Money-lender.

Ser = A capacity measure varying in different localities.

Sirdar = A title of considerable rank.

Subhedar = *Vide havildar.* A *Subhedar* is of higher grade than a *havildar.*

Tal = A field embankment made of earth or stone.

Taluka = A subdivision of a district made for administrative purposes.

Tankha = The name given to the revenue settlement introduced by Malik Ambar.

Tonga = A kind of carriage.

Upri = An old form of land tenure.

Zamindar = Land-holder.

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